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HIGH-LEVEL MEETING

Report of the High-level Advisory Board on Sustainable Development on its second session, New York, 17-22 March 1994

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PREFACE

1. The High-level Advisory Board on Sustainable Development was appointed by the Secretary-General of the United Nations in July 1993 and held its first session in New York on 13 and 14 September 1993. The terms of reference of the Board are in the appendix to annex III below. The names and curricula vitae of the members are in annex IV.

2. At its first meeting the Board decided to focus its initial effort on three broad themes:

(a) Linkages between economic, social and political development in a changing world;

(b) New approaches to finance and technology;

(c) Establishment of new partnerships between the United Nations system and other bodies active in the field of sustainable development.

3. The Board established panels of its members to carry forward work on those themes between its first and second sessions. The panels reported to the Board at its second session in New York on 21 and 22 March 1994. Chapters II, III and IV of the present report are based on their work.

4. The members of the High-level Advisory Board wish to emphasize that this, their first substantive report, is not comprehensive. A deliberate effort has been made to be selective within the broad themes identified and to avoid duplicating the very large volume of work in progress elsewhere, including that in preparation for the sessions of the Commission on Sustainable Development. The Board has developed a series of comments and propositions, which it now puts forward for consideration.

5. The Board emphasizes that the main theme that runs through these pages is the need for new linkages. They need to run from global through regional and national to subnational institutions. They need to link government to the world of business, industry and commerce, in partnership for technology transfer and cooperation. They need to link the institutions of the United Nations system to one another and to non-governmental entities in the world of science, environment, sustainable development, humanitarian relief, business, industry and commerce, labour, and many other sectors of society.

6. In its advisory capacity, the Board will, of course, give priority to topics on which the Secretary-General asks for advice. It will be forward-looking, seeking to identify the issues that will be important to the United Nations in the future and providing suggestions as to how they may be addressed. As the Secretary-General has requested, its members will take on a promotional role, building understanding of the immensely diverse work of the United Nations system and seeking to forge new alliances between the United Nations, the specialized agencies and groups outside the system.

I. EXECUTIVE SUMMARY

7. This first report of the High-level Advisory Board on Sustainable Development focuses on linkages. Since peace, development and environmental protection are inseparable, sustainable development will be achieved only if government, the business world, industry, labour, science, and environmental, human rights and citizen's groups work together. New alliances are also needed at the international level, especially between the United Nations and its specialized agencies and a wide range of other bodies.

8. Social, environmental and economic changes are driving societies at an ever-increasing rate towards an uncertain future. Universal information and the emergence of supra-national groupings are rendering national frontiers porous, while within States, demands for devolution to the local level impose other stresses. New approaches to governance, law, and economic and social development are essential. New linkages are needed between economic, social and political processes.

9. The United Nations system needs to promote such linkages in its own machinery. Joint meetings of the Bureaux of its various intergovernmental bodies might be one means of facilitating cooperation. International lawyers might be invited to identify areas where international legislation is most urgently needed and to propose appropriate machinery for the settlement of disputes. The annual report of the Secretary-General might specifically address two or three emerging issues and the linkages between them, and those issues could create a focus for the High-level Segment of the General Assembly, which might also include informal, interactive panel sessions.

10. Governments and international organizations have much to contribute. There is need to reach early agreement on an appropriate, comprehensive and balanced set of indicators of sustainable development and to use them to monitor progress. Governments should also examine how to apply general principles like the "polluter pays principle" in national and international regulations, taking steps to ensure that where such action threatens to add to the burdens of the poor, compensatory mechanisms are adopted. Transferable development rights, international commodity-related environmental agreements, and tradeable emission permits are other technical instruments whose value and application should be considered. And where changes in environmental or social circumstances cause international movements of people, new policies to deal with them in a fair, expeditious and efficient way should be developed.

11. New approaches to finance and technology are also needed. The primary role of the governmental and intergovernmental communities is to create a framework of conditions which facilitate the development and adoption of environmentally sound technology and ensure that markets are guided towards solutions which are both socially and environmentally appropriate. Governments should create conditions in which business can flourish, because technology transfer and cooperation between enterprises work best under such conditions.

12. If the right mix of regulation and economic incentives is provided by Governments, expenditure on controlling environmental pollution should reduce overall costs to the countries concerned. Foreign investments should help

improve environmental quality in the recipient countries. International minimum environmental standards should be developed by cooperation between Governments, multilateral organizations, business and non-governmental organizations.

13. Sustainable development may demand investment which is paid back only over a long time scale. Its finance may require new and innovative partnerships between Governments, international financial institutions and the business sector. Such partnerships require changes in attitudes and procedures among all the partners concerned. And Governments need to continue to provide official development assistance for technology transfer and cooperation, even if investment by the business sector is stimulated.

14. New partnerships are also needed between the United Nations system and other bodies active in the field of sustainable development. Partnerships, in this sense, are relationships which help both partners to advance their missions. Non-governmental entities (including local authorities, labour and business organizations, scientific, economic, humanitarian and environmental bodies and citizens' groups) have the potential to contribute much expertise and can greatly assist in the work of Governments and the United Nations system.

15. At the national level, Governments can greatly enhance their own ability to achieve sustainable development and contribute to United Nations activity by developing partnerships with their own non-governmental communities. Direct links between non-governmental entities and the secretariats of the United Nations and the specialized agencies could greatly assist the latter in their work. Consultative forums between United Nations bodies and non-governmental entities, and especially coalitions with particular expertise, should be considered. The United Nations should enhance its capacity to build such partnerships with non-governmental entities and to reflect their views in its documents. These matters should be considered by the working group reviewing the relationships between the United Nations and non-governmental entities, defined in Economic and Social Council resolution 1296 (XLIV).

16. The United Nations system can do much to catalyse a participatory approach throughout the world. Besides building its own links with non-governmental entities, the United Nations can develop and promulgate models of successful partnership, emphasizing the need for flexibility, practicality, adaptability, cost-effectiveness and accountability. It can support training, information flow and the promotion of awareness, and capacity-building. In parallel, the non-governmental community can enhance its capacity to contribute to partnerships with United Nations bodies by, for example, organizing its members into representative coalitions and by inviting United Nations participation in their activities.

17. The United Nations system could do much more to publicize its work for sustainable development. Partnerships with potential commercial sponsors would ensure better distribution of its excellent film material. Partnerships with non-governmental entities could also do much to publicize and promote the work of the United Nations.

II. LINKAGES BETWEEN ECONOMIC, SOCIAL AND POLITICAL DEVELOPMENT IN A CHANGING WORLD

"Peace, development and environmental protection are interdependent and indivisible."

- Principle 25 of the Rio Declaration

A. General considerations

18. The concept of peace as the absence of war is easy to grasp and has conditioned the way in which the role of the United Nations in peace-keeping operations - embracing peacemaking, peace-keeping and preventive diplomacy - has been regarded. During the Cold War the principal focus was on the avoidance of nuclear war between the nuclear powers, while low-intensity wars which threatened geo-political stability were often controlled by the intervention of the super-Powers. With the end of the Cold War a new situation with different types of conflicts has arisen. The hegemonic Powers have less direct interest in the quick resolution of conflicts and wish others to share the burden of intervention. Thus, the United Nations is asked to be more active. Unfortunately, the Organization often has insufficient resources to be fully effective, and thus the threat of an escalation and broadening of local conflicts arises.

19. Peace, however, is more than non-war; it is a positive value. The notion of peace as a positive concept in the form of institutional pacifism is more complex. It includes both security and the provision of conditions for the fulfilment of life inherent in the free and unimpeded interaction of people on a universal basis. Those conditions involve the economic, social, environmental, and political spheres. Peace-building has to deal with inequities which exacerbate social tensions and threaten an unstable world order. Conflict over natural resources may give rise to civil disorder within States as well as between or among them and may have played a role in the Cambodian conflict. Sustainable development - and international cooperation and assistance to support it - should be seen as an important contribution to conflict avoidance. There are interdependent issues even in peace-keeping and post-conflict peace-building since, for example, environmental issues in such sectors as potable water and sanitation, energy, and transportation have to be addressed. Peace-building must also, of course, enhance the capacity of a society to manage conflict; mediation between groups and factions is crucially important. Where the United Nations is involved in peace-keeping, it should continue its efforts for long enough to guide the communities concerned back onto the path towards sustainable development.

20. All societies are buffeted by the winds of change. Powerful forces of globalization (centripetal forces) and of fragmentation (centrifugal forces) are operating simultaneously in the world of today. Each has its own logic involving different actors and interests. The globalization of production by transnational corporations, the globalization of international finance, globalization of information, and large-scale movements of people have not been matched by a corresponding reshaping of political institutions. Prolonged

periods of low commodity prices have had a major impact on the economies of States, especially when they are dependent on a relatively small range of primary commodities. States have responded to these and other changes with varying degrees of effectiveness. As a result, among the countries referred to as developing, several have grown rapidly, transforming their economies substantially, and a few of them have joined the ranks of the industrialized countries. Others, including most sub-Saharan African countries and least developed countries elsewhere, have been unable to organize an effective response and are at risk of becoming further marginalized. In some countries, regrettably, agricultural producers have switched to growing highly lucrative crops for the illegal production of narcotics.

21. The longer-term environmental consequences of the current patterns of economic and demographic change are on the agenda of the international community. Imbalances between population growth and carrying capacity in many States have already led to social instability in many countries, as has the necessity of coping with political and environmental refugees in poor host countries. In the long term, increasing numbers of retired persons relative to those in the active labour force are likely to be a source of financial strain and intergenerational tension. And pressures to liberalize the international labour market may exacerbate international tension.

22. A number of other factors is driving structural change at a rapid pace. The activities of transnational corporations and of enterprises in dynamic economies, together with trade liberalization, have caused major changes in the international division of labour. In the technological arena, robotics and biotechnology, which have begun to lead to a re-engineering of manufacturing and agricultural production processes, point to an ever-shrinking demand for unskilled and even many types of skilled labour in those industrialized countries where the techniques are introduced. At the same time, the demand for workers and managers highly skilled in information technologies can be expected to increase. Although the speed of dissemination of new technologies and that of market penetration by exporters is limited by the rate of growth of capital accumulation, many businesses have not been able to adjust rapidly enough. Educational systems have been slow to adjust as well, leading to a mismatch between the skills needed in the modern economy and those possessed by current members of the labour force and to a fear of ever-growing structural unemployment.

23. Another force shaping the world is the telecommunications and informatics revolution. On the one hand, developments have made possible the globalization of business and finance, mentioned above, and the more efficient organization of the production of goods and services. On the other hand, they produce an unprecedented flow of information which enhances the awareness of violence and a growing public sense of insecurity which provokes a demand for reaction by the political system. The globalization of communications also spreads the cultural values of industrialized countries faster than local cultures and value systems can adapt, thereby increasing social tension. But, again, indigenous peoples have made use of those very same techniques to popularize some of their own cultural values, encouraging "stewardship" and a "transcendental" respect for nature in alliance with environmentally concerned groups.

24. In the political sphere, national frontiers are rendered porous by telecommunications, the growth of scientific activity and knowledge, global or regional actions to protect the environment, and global investment and commerce, while States increasingly decide to yield some of their sovereign prerogatives in political association with others. Many examples come to mind: the European Union (EU), the North American Free Trade Association (NAFTA), the Common Market of the Southern Cone (MERCOSUL), the Association of South-East Asian Nations (ASEAN), the Asia Pacific Economic Cooperation group (APEC) etc. Within States, fragmentation is of growing concern. The weakening of traditional political authority leads many to question the legitimacy of rule by traditional elites. The lack of an effective means to develop political consensus has led to great difficulties in implementing economic reform programmes which are said to suffer from "weak ownership" in many developing countries.

25. In extreme cases, the backlash to the increasing erosion of state authority in societies hitherto dominated by traditional values takes the form of extreme nationalism, ethnic tribalism, and intolerant religious fundamentalism. Acceptable humanitarian intervention in situations of intolerable national behaviour has become necessary even when the "spillover effects" from dysfunctional States do not directly threaten international order. In many other situations, as economic and social conditions worsen, either because of resurgent nationalism and ethnic and religious tension or because of socio-economic pressure, such as environmental degradation, population pressures and poverty, migratory pressures increase. The consequent cross-border flows of refugees and internal population movements further exacerbate ethnic and communal tension.

26. Many observers trace the growing sense of social alienation to the erosion of religion, ethics, and moral values. Associated with this perception is concern over the weakening of bonds among family members and within small communities and over the increase of crime at the local, national, and international levels.

27. In short, the fundamental problem is the tension between the forces and the logic of globalization and those of fragmentation.

B. Need for new approaches

28. There are several requirements for improved governance of the international system if the concrete realization of an enhanced concept of peace is to be brought about:

(a) An improved process for issue recognition and early warning, especially in situations of sudden crisis, whether it be economic, social, political, environmental or some combination thereof;

(b) Enhanced coordination of existing institutions, reflecting an interdisciplinary concept of security which would, for example, allow a more integrated approach to early warning, crisis and post-crisis management, rehabilitation and reconstruction;

(c) Improved procedures for formulating an agenda of practical measures to be agreed upon and implemented by the United Nations system.

The proposals in chapter IV for new partnerships are relevant here.

29. The content of the agenda, however, should reflect an awareness of the linkages between threats to security, broadly defined, and pervasive worldwide inequities. Because the concept of sustainable development is multidimensional - linking development with political, economic, social, environmental and, even, security considerations - it provides a useful framework for dealing with the complexity of such contradictory processes as globalization and fragmentation.

30. The concept of sustainable development underscores the importance of understanding the long-term consequences as well as their short-term ramifications of policies and behaviours that are responses to crises. The Rio Conference and the parallel Global Forum were responses to the mismatch between patterns of development and the requirements of environmental sustainability. The perception of a similar mismatch between patterns of economic, social and political change and the requirements of social stability has resulted in the decision to focus the World Social Summit on the issues of poverty, unemployment, and marginalization. One question that might be considered in that context is whether the ability of society to absorb and defuse social tension can be analysed in a manner analogous to that of carrying-capacity in environmental analysis.

31. Sustainability explicitly recognizes the value of diversity. It requires the internalization of externalities, which is equivalent to a recognition of responsibility. It recognizes that the development of political diversity allows a broad spectrum of the society to participate in the political decision-making process. It calls for the enhancement of broad economic structural diversity to assure harmonious balanced development. It requires the acceptance of ecological diversity to ensure the sustained functioning of ecosystems in long-term development. Sustainability requires a unified approach within which the interdependencies between issues and sectors are taken into account in the design of political, economic and environmental policies.

32. Such a design implies the elaboration of a matrix of policy instruments and objectives, because a policy measure implemented to achieve an objective in one area may have unintended consequences, requiring supplementary policies in other areas. Any application of this technocratic approach should be preceded by an analysis of the carrying capacity of eco-systems and the critical loads of pollution they can tolerate; steps to strengthen the effectiveness of governance, meaning the ways by which sustainable development is managed at the local, national and global levels; and the formulation of a technology policy geared towards enhancing the capacity to choose and to adapt, implicit in major technological shifts and management approaches, rather than only to technology transfer in the traditional meaning of that term.

33. The importance of mutually reinforcing policies can be underscored by noting that, for example, all apparent conflicts between development and the protection of the environment can be traced to six causes:

(a) Government failure - i.e., incentives created by Governments to use the environment wastefully and inefficiently;

(b) Market failure - i.e., failure of prices generated by the market mechanism to reflect fully the costs of production and consumption;

(c) Missing markets - i.e., absence of unenforced property rights for environmental services and therefore a lack of vested interest on the part of economic agents in the sustainable exploitation of natural resources;

(d) Situations in which the income-earning opportunities to which the poor have access are insufficient to sustain life without depleting the stock of natural capital;

(e) Failure to recognize the need for enhancing political, economic and ecological diversity in the process of development;

(f) Scientific ignorance or error, leading to unsustainable practices or the introduction of damaging products.

34. Another response to the challenges facing the international community is to endeavour to extend the rule of law. Both national and international laws seek to promote changes in behaviour. By extending international law, States accept limitations to their competencies in exchange for arrangements which benefit the citizenry of all of them. International legal frameworks may of course provide incentives and disincentives to influence behaviour as well as the more traditional use of prohibitions and commands. Market-based incentives also have much to recommend them since they constitute voluntary rather than coercive mechanisms and are more efficient policy instruments than pure command and control regulatory regimes. The effectiveness of such laws and instruments depends, however, on their acceptability to society at large, and here education and information have a crucial part to play - especially where it is necessary to persuade people to alter their life styles in the interests of sustainable development.

35. Still another response to economic challenges has been for multilateral financial institutions to assist developing countries and economies in transition with the design of structural adjustment programmes and to provide some of the external finance required for their implementation. Developing countries often perceive this as tantamount to the imposition by the donor community of policies which they feel are insufficiently differentiated from one country to another. All too often these programmes fail because they cannot be fully implemented. This points to the need to develop these structural adjustment programmes through a consensus-building process at the national level which will more adequately prepare the different groups affected by them for the sacrifices that will be necessary and which will ensure an appropriate sharing of the burden of adjustment. For the most developed market economies, the discipline of financial markets leads to prudent fiscal management since the prospect of growing budget deficits quickly results in increases in long-term interest rates. For countries in the European Union, the Maastricht agreement requires gradual convergence of fiscal and monetary policies. Also, the adherence of the most developed market economies to agreements to liberalize

trade implies an acceptance on their part of the necessary medium-term structural adjustment which that entails. An important problem remaining, however, is the lack of an effective surveillance mechanism to ensure that the macroeconomic policies of the Group of Seven major industrial countries are designed to take fully into account their impact on the world economy and especially on the developing countries and economies in transition.

C. Recommendations

36. Governments must move beyond the sharing of information to the sharing of resources and joint action. In particular, ways must be found to integrate social, political and demographic issues with issues of international finance, trade, labour and technology. A framework for their integration might be developed by joint meetings of the bureaux of the relevant United Nations bodies and specialized agencies. Further recommendations on the development of partnerships between the United Nations system and non-governmental entities are made in chapter IV.

37. The deliberative process at the international level mirrors the division of responsibilities at the national level. For example, international specialized agencies such as FAO, UNIDO, the ILO, WHO, UNESCO, UNEP and GATT have, as their national counterparts, ministries of agriculture, industry, labour, health, education, environment and trade; the IMF and the multilateral financial institutions correspond to central banks and finance or economic ministries; the United Nations itself, especially the General Assembly and the Security Council, has as its national counterpart ministries of foreign affairs. What is lacking is the functional equivalent at the international level of national mechanisms for priority-setting and examination of linkages between sectoral issues performed by the office of the presidency or the cabinet of ministers. As a first step, the innovation of an annual policy report of the Secretary-General could reinforce a trend to use the high-level segment of the General Assembly for this purpose. If so structured and made available in capitals with sufficient lead time, the report could encourage Governments to address, inter alia, two or three pre-defined issues in their addresses to the General Assembly. It should deal with emerging issues and linkages between them. It should also make concrete proposals to Governments as to how best to deal with those linkages in the context of the United Nations system. Dialogue between Heads of State might be further encouraged by compressing the High-level Segment of the General Assembly into a shorter time-frame or, perhaps, by organizing informal forums concurrently.

38. Adequate machinery for producing an evolving set of global rules is not in place. International legal authority is totally fragmented. Yet the use of law and due process is the essence of shared competencies for international cooperation. The General Assembly might consider inviting international lawyers chosen by their countries' Governments to identify issues where global legislation is most urgently needed and to propose appropriate mechanisms for the settlement of disputes. International legal frameworks need to be supplemented by mechanisms for monitoring their implementation and measures to ensure compliance. Raising such issues would seem particularly appropriate in the middle of the Decade of International Law.

39. Indicators for monitoring sustainable development are indispensable; yet it is a complex issue to choose an appropriate, comprehensive, and balanced set of indicators for many purposes, especially cross-sectoral linkages. Among other considerations, indicators that are suitable for monitoring the sustainability of supply or production as well as the sustainability of demand or consumption should be identified. Monitoring the material intensity, energy intensity, and renewable resource content per unit of final use is also highly important.

40. The application of the "polluter pays" principle is important for efficiency, because it ensures that the cost of implementing methods to reduce pollution will be borne by those who inflict the damage. By application of the "polluter pays" principle, considerations of equity and efficiency usually coincide. However, not all policies intended to correct environmental problems by applying the principle help the poor; occasionally, the poor are harmed, and when this occurs, compensating policies should be introduced.

41. Compensating policies should also be considered when other environmental instruments that may disadvantage the poor are negotiated.

42. Transferable development rights are contracts for the sale or leasing of land which specify obligations on the part of the buyer/lessor in respect of conservation and confer rights to use the property in certain limited ways. This device, which is already in use in many countries to ensure the conservation of historical sites, could reduce or eliminate the "missing market" problem associated with the issue of habitat protection. It does so without infringing on national sovereignty, since any country could freely establish the conditions for sale or lease of publicly held lands, thereby generating a revenue stream for the Government. It could also - by publicizing the terms of such agreements and encouraging their proliferation - reduce pressure from environmental lobbies for international conventions which would have a negative impact on national sovereignty.

43. Another idea is to use existing forums of producers and consumers established to negotiate primary commodity agreements to explore introducing environmental safeguards into them. International commodity-related environmental agreements would avoid the problem of loss of competitiveness associated with unilateral internalization of the external costs generated by their methods of production. Such agreements would establish a compensation mechanism by which consuming countries would compensate developing-country producers for costs incurred in producing the particular commodity in a more sustainable way.

44. Still another idea on which a considerable literature is beginning to emerge is that of tradeable emission permits. This device is not a "license to pollute". Rather it is a way to encourage economic agents to determine the least costly way of limiting total emissions to levels established by national regulation or international agreement. This device is often suggested for CO_2 emissions and would need to be negotiated by the parties to the Convention on Climate Change.

45. In order to deal with the challenges posed by international movements of people, Governments should develop fair, efficient and expeditious procedures to

differentiate between those fleeing war and violence and those fleeing poverty. International protection and assistance should be granted to refugees and the internally displaced until they can return home. Economic migrants could be dealt with by liberalizing immigration policies in ways that recognize the demographic patterns and labour needs of the industrialized world as well as the aspirations of poorer countries in the East and South. Capital, trade and technology markets have already been liberalized, and there is a case for liberalizing labour markets as well.

46. To take the linkages between economic, social and political development in a changing world into account would create an entirely new basis for the United Nations system, and this report is intended to be a step in that direction. The Board will continue to work on the theme of linkages and will make additional proposals at a later date. It also recommends a country case-study - in Cambodia or Viet Nam, for example - to test the feasibility of an integrated approach to public policy formulation in the economic, environmental, and social areas and to evaluate the effectiveness of the United Nations role in the continuum of peacemaking, peace-keeping and peace-building.

III. NEW APPROACHES TO FINANCE AND TECHNOLOGY

A. General considerations

47. The terms of reference agreed upon by the Board at its first session for its work on new approaches to finance and technology included the consideration of innovative methods of financing and securing resources and technology transfer; the importance of developing and sharing new technology (especially "eco-efficient" processes); and the development of new modes of capacity-building. It was emphasized that the aim was to avoid the damage caused by inappropriate technology transfer, and that South/South and North/South sharing of experience would be of particular value.

48. There have been numerous initiatives in this broad field. The Commission on Sustainable Development established inter-sessional ad hoc open-ended working groups on finance and on technology transfer and cooperation. A workshop on the transfer and development of environmentally sound technologies was held in Oslo, Norway, from 13 to 15 October 1993, while a meeting on financial issues and Agenda 21 was convened in Kuala Lumpur, Malaysia, from 2 to 4 February 1994.

49. Key documents, including the Secretary-General's report to the Working Group on Technology Transfer and Cooperation and the Report of that Working Group were made available to the Board. Because of this continuing activity, and not thinking it appropriate to duplicate it, the Board decided to focus its initial effort on new approaches to environmentally sound technology transfer and cooperation, with particular emphasis on the role of the private sector. At a later stage, the Board envisages broadening its analysis, especially into the field of capacity-building. Innovative ways of mobilizing financial and other essential resources - for example, by redeployment from the military to the civilian sectors - may also be considered as a topic for later study.

50. This chapter of the Board's report therefore considers ways in which Government and the business community can cooperate within a framework of appropriate enabling conditions. The aim is to attract private-sector investment for environmentally sound technology and sustainable development. The Board accepts that such an approach must take place within a context of policy and a regulatory framework which guides the market and ensures solutions that are both socially and environmentally appropriate. A balance has to be struck between democratic decisions on social policies and the need for free operation of markets. Such conditions clearly depend on adequate systems of governance in the countries concerned.

51. The Board emphasizes that the process of cooperation between Governments and the business sector to stimulate investment in environmentally sound technology does not remove the need for official development assistance (ODA) to promote sustainable development. The Board endorses the call by the United Nations Conference on Environment and Development for significant new resources, including ODA, and urges Governments to honour their undertakings in this field.

52. The ability of countries to mobilize domestic resources and to create conditions that attract foreign direct investment varies considerably from region to region; it is particularly weak in much of sub-Saharan Africa and in the least developed countries elsewhere. Technology transfer and cooperation in such countries is likely to depend on ODA; so is support for the introduction of technology for public-sector activities such as waste disposal and the improvement of water supplies.

B. Need for new approaches

53. The transfer of environmentally sound technology 1/ requires a process of cooperation between providers and recipients before, during and after the transfer. For this reason it is more useful to describe the wider process as "environmentally sound technology cooperation".

54. The expertise required for technology transfer and cooperation is being developed in many countries. Governments and enterprises are urged to look throughout the world for the best ideas and creative solutions to meet their needs and solve their problems.

55. Technology transfer and cooperation work best between economic enterprises - those that have a motive to provide new technology and a motive to use it efficiently. Conditions for success include the know-how, operating and maintenance skills of the user and appropriate communications and training on the part of the originator. Companies must continue to adapt and develop the technology during their period of cooperation.

56. Thus, technology cooperation is most successful where business works best. Creating such conditions should be a high priority for Governments. This requires an opening of markets and an appropriate enabling environment in all countries, including macroeconomic, financial, legal, regulatory, and institutional conditions and capacity-building and human resources development.

57. Increased competition will create and expand markets for new environmentally sound technology which, because of its increased efficiency, tends to be cleaner and less wasteful.

58. However, to create a market specifically for cleaner technology, the legal and policy frameworks must be improved and effectively implemented. Such frameworks should include a mix of regulatory and economic instruments, requiring and encouraging companies to be safer, less polluting and more efficient in the use and management of resources.

59. At present, many developing country Governments fear that environmental protection adds to the costs of production by imposing standards that are more stringent than needed. They believe that such protection will deter industrial investments and stunt economic growth. This is one of the reasons why, in many countries, environmental standards are minimal and laws are not enforced. This attitude will change, and is changing, as Governments realize that prevention is usually less costly than clean-up and as trade is seen to favour countries with higher environmental standards.

60. Foreign investments for technology transfer and cooperation can be expected to contribute to the improvement of environmental quality in the recipient countries. One reason is that transnational corporations are increasingly applying similar environmental standards in all countries. Multilateral and bilateral development programmes could be used to encourage compliance with the kinds of international minimum standards which are being developed by organizations such as OECD, the International Chamber of Commerce and the International Standards Organization. Governments, multilateral organizations, businesses and non-governmental organizations should cooperate to develop such international standards.

61. There will remain situations where sustainable development will call for technology cooperation that is not quite commercially justifiable because the payback periods, based on current capital market patterns, are too long to justify the necessary investment. There are also situations where the market and business structure are inadequate. These cases will require innovative new partnerships between Governments and business.

62. Such partnerships may require:

(a) An increased willingness on the part of Governments and development agencies to change their procedures and outlooks to take better account of the realities of business and to see business and industry as natural partners in the overall development cooperation framework;

(b) An increased willingness on the part of Governments, in cooperation with business, to invest in cleaner technologies in the interest both of environmental security and increased competitiveness;

(c) An increased willingness on the part of business corporations to seek economic opportunities in long-term technology cooperation arrangements and a willingness to get involved in the communications, training and education which that requires;

(d) An increased willingness on the part of multilateral organizations, such as the World Bank, regional development banks and United Nations agencies, to play a role in these new government/business partnerships;

(e) An increased willingness on the part of Governments and development agencies to move away from "tied aid" towards more demand-driven technology cooperation.

63. In the present era of trade and business liberalization, such innovative government/business partnerships might form new, mixed public/private companies to promote and provide environmentally sound infrastructure services for industrial parks, particularly in developing countries. This would greatly help municipal authorities to provide for rapidly increasing needs for public services.

64. Another form of such partnership might focus on retrofit projects, often involving privatization, to provide new equipment to underperforming operations, making them more commercially viable and eco-efficient. The aim would be to provide industrial facilities in need of upgrading and development with improved environmental and financial performance, through management training and increasing productivity. Target facilities would typically be process plants involved in energy, cement, ferrous/non-ferrous metals, chemicals and fertilizers.

65. A well-conceived enabling framework for private-sector investment and a new partnership for development, as described above, offer the best opportunity to produce the new and additional financial resources required to promote technology transfer and cooperation.

C. Recommendations

66. Governments should create conditions in which business can flourish, because technology transfer and cooperation between economic enterprises work best in such conditions.

67. To create a market for cleaner technology, Governments should use a mix of regulatory and economic instruments, requiring and encouraging companies to be safer, less polluting and more efficient in the use and management of resources.

68. Governments, multilateral organizations, businesses and non-governmental organizations should cooperate to develop international minimum environmental standards.

69. In situations where investments in technology cooperation are not commercially attractive because of the long pay-back periods, new and innovating partnerships between government, business, international lending agencies and donor countries are required.

70. Governments should honour undertakings entered into at UNCED to provide additional official development assistance, which is essential even if investment by the business sector is also stimulated.

IV. ESTABLISHMENT OF NEW PARTNERSHIPS 2/ BETWEEN THE UNITED NATIONS SYSTEM AND NON-GOVERNMENTAL ENTITIES 3/

A. General considerations

71. The United Nations system, either alone or in alliance with Governments, cannot achieve sustainable development. There is a substantial community consisting of non-governmental entities that need to be accepted into partnership with the United Nations system and/or with Governments in order to enhance progress towards sustainable development.

72. The concept of "partnership" is a broad one and can apply to many kinds of relationships between entities. Ordinarily, a partnership implies a relationship during which a decision or consensus on an issue or action in pursuit of a common objective can be envisaged. However, in the present context, the concept of "partnership" must be extended to working relationships during which, although no such decision or consensus may be expected, there is, as a result of that relationship, an increased awareness on the part of either or both entities of possible perspectives or approaches.

73. Such partnerships between the United Nations system and non-governmental entities are necessary because the latter have special knowledge, active memberships and a capacity to build awareness and promote action, enabling the United Nations system internationally, and Governments nationally, to provide a framework for action and to coordinate and develop governance mechanisms, laws, economic planning and strategies for advancing the process of sustainable development.

74. Partnerships should bring all sectors together in a common understanding of what is needed, and then advance implementation. They have to promote the central message of Rio - that environment and development are inseparable. The non-governmental community should be fully involved in the process, in fulfilment of a duty to cooperate in the protection of the planetary environment, in the spirit of sustainable development.

75. An apprehension is often voiced in regard to the mushrooming growth of non-governmental entities and the difficulties in determining which of them should be considered for partnership with the United Nations system. The entities concerned are perceived as differing widely in stature, professionalism and financial accountability. One manner in which the difficulty can be overcome is for Governments to resort to domestic legislation for registration of such entities, requiring them to disclose their constitutions and the aims and objects for which they have been constituted and to submit financial statements regularly. Such legislation exists already in many countries, and evidence of compliance provides the basis for deciding the suitability of such bodies for partnership with the United Nations system. Difficulties in that matter should not afford grounds for selecting arbitrarily determined entities or for unduly restricting the categories eligible for selection.

B. Need for new approaches

1. Ways of enriching the United Nations system by building productive partnerships with non-United Nations bodies

76. While the United Nations system can benefit by a dialogue with non-governmental bodies, it is not practicable to give such a multitude of entities participatory rights in the governing forums of the United Nations system. The decision makers in such forums must remain States, through their representatives. None the less, the process of such decision-making can be enriched by a dialogue with non-governmental entities since they are repositories of expert information and advice based on particular experience and they represent a wide spectrum of public commitment.

77. This was a feature of the UNCED process, where the non-governmental organization community - in particular, scientific and professional bodies - contributed greatly to the preparatory work of the Secretariat. In parallel, many Governments drew on national non-governmental organization expertise in their own preparations. The partnerships between the United Nations system and non-governmental entities should operate as a two-way relationship:

(a) The partnership should make a contribution to the United Nations system;

(b) The partnership should result in the development of an informed supportive community for whom the work of the United Nations has credibility. In large measure, decision-making by a system such as the United Nations must enjoy credibility in order to secure compliance.

78. Some non-governmental entities are already deeply involved in practical partnerships of this kind. Humanitarian relief organizations are closely associated with the United Nations in famine and disaster relief. Others are closely linked with work on the implementation of the Convention on Biological Diversity and other international legal instruments.

79. Partnerships can greatly benefit the non-governmental entities themselves in achieving their own missions. Their commitment is likely to increase if good links can be established with United Nations bodies, on a basis of real mutual benefit and support and if value and due credit are given to their contributions to the United Nations system.

80. Drawing on the practical experience of UNCED, the International Conference on Population and Development, the World Summit for Social Development, the Fourth World Conference on Women and other initiatives, the following conclusion can be reached:

(a) Partnerships between non-governmental entities (especially professional and representative ones) and national Governments can, by enhancing governmental knowledge and awareness, contribute in turn to the effectiveness of such meetings. The United Nations system should accordingly encourage Governments to develop machinery for utilizing that expertise. Any resistance to such linkages on the part of government departments is likely to wane as

confidence in the value of such input grows, and non-governmental entities concerned grow in public status;

(b) Direct links between non-governmental entities and the secretariats of the United Nations system could greatly assist the latter in the production of documents, analyses and action proposals;

(c) In some circumstances it could be most valuable for United Nations bodies to set up consultative forums for discussion and information exchange with the non-governmental community. Such forums would involve non-governmental entities - especially coalitions - with appropriate expertise;

(d) There is a particular role for major groups, in such areas as science, law, conservation, humanitarian aid, women's participation, youth and indigenous peoples, and such groups should be encouraged to develop their own capacity for partnership by consultative mechanisms and also by forming coalitions sharing collective interests in specific areas of the sustainable development process.

81. Such partnerships impose obligations on the non-governmental community, which must approach the relationship with genuine willingness to cooperate and exchange information and views.

2. Ways of promoting and drawing on practical and effective partnerships throughout society

82. The United Nations system should consider how it could catalyse and expand the participatory approach throughout the world and so ensure that citizens and all sectoral groups in society were involved in the process of sustainable development.

83. Awareness develops consciousness, which in turn leads to conviction, and this produces active leadership. In other words, as awareness spreads, so action expands.

3. Ways of ensuring a flexible, adaptive, practical and cost-effective approach

84. The United Nations system should engage in continuing dialogue with major non-governmental entities and groups, to ascertain how partnerships could be improved. The scientific community, in particular, has rich experience to contribute.

85. The United Nations system needs to review its links with the non-governmental community and consider how far these can be made more flexible and suited to the world after Rio. (The Economic and Social Council has established an open-ended group to evaluate such relationships.)

86. A questionnaire developed by one panel member suggests one mode of approach. Recent meetings (like the British Partnerships for Change Conference)

could be followed up. The Earth Negotiations Bulletin could also be used to canvass opinions.

87. The likely criteria for a successful approach by the United Nations system are the following:

(a) Flexibility. Relationships with the non-governmental entities should not be over-institutionalized or tied to one standard structure but should be able to adjust as issues arise and should be constructed by each part of the United Nations system according to its perceived needs;

(b) Practicality. The approach must be goal-oriented;

(c) Adaptability. The approach must recognize that sustainable development is an evolving concept, and the machinery must accordingly evolve with new understanding and experience;

(d) Cost-effectiveness. Account must be taken of the fact that the non-governmental network is highly self-motivated and involves many volunteers who are prepared to give knowledge, time and effort at a very low cost;

(e) Accountability. The United Nations system should select partners with defined constitutions, legal status, and a membership or constituency to whom their officers are accountable.

88. As a final suggestion, models of partnership might be developed in particular locations where there is evidence of willing cooperation.

4. Making the United Nations more open to its partners

89. Many of the contributions destined by non-governmental entities for consideration in the United Nations system are channelled through their Governments, but not all Governments are receptive to ideas from non-governmental entities. The Commission on Sustainable Development could urge such action upon them.

90. Formal relations between the United Nations and the non-governmental community are governed by a 25-year-old resolution defining "consultative status". The adequacy of this definition and possible ways in which it might be changed are under examination.

91. In building confidence among non-governmental entities, it is necessary for the United Nations system to demonstrate that it attaches appropriate value to what they say. An open relationship will greatly enhance confidence. Secretariats of United Nations bodies can go a considerable way towards this goal by establishing or refining their own consultative mechanisms.

92. An increasing number of major non-governmental entities are inviting United Nations participation in their governing bodies and major conferences. Such United Nations participation is an important means of promoting a more open and reciprocal relationship.

5. How to publicize the work of the United Nations

93. The United Nations system can play an important part in enhancing the lives of rural and urban communities everywhere. Its role can be brought home by employing communications modes suited to local cultural conditions. There is a variety of ways in which this can be done.

94. The United Nations produces much first-class documentary film material, which fails to receive wide screening because of lack of sponsorship, lack of "personalities" connected with it, aversion to self-publicity or a lack of enthusiasm for organizational publicity. An earnest effort should be made, on a systematic and regular basis, to find sponsors and establish a "sponsorship bank" which would support the distribution of such films. The approach of the fiftieth anniversary of the United Nations provides an appropriate occasion for organizing such publicity. The view of the Secretary-General that this publicity should emphasize the major role of the United Nations in promoting sustainable development is strongly supported.

95. The forthcoming opportunities for publicity should be utilized by all United Nations bodies. UNDP in particular should be able to provide some absorbing accounts of sustainable development on the ground. All United Nations bodies should be urged to suggest 20 good stories telling key messages about the work of the United Nations - all with a human, on-the-ground angle, rather than dealing with Conferences. The United Nations Joint Information Committee should be urged to develop a more cooperative approach to promote the United Nations system as a whole.

96. With the development of good partnerships, non-governmental entities themselves can be expected to provide some success stories linked to local communities and cultures.

97. Non-governmental entities can also make an active and highly significant contribution by impressing upon society the need to accept changes in taxation and subsidy systems and adaptations in life styles in order to facilitate sustainable development.

C. Recommendations

98. Governments should enhance their ability to contribute to United Nations activities by developing partnerships with their own non-governmental communities.

99. In the course of its review of its relationships with non-governmental entities, as defined by the Economic and Social Council in resolution 1296 (XLIV), the United Nations should enhance its capacity to build effective partnerships with non-governmental entities and to reflect their views in its documents.

100. The United Nations and its agencies should:

(a) Strengthen their linkages with appropriate intergovernmental bodies and non-governmental entities in order to draw upon their expertise;

(b) Seek to enhance national action by developing and promulgating models for partnership, based on case-studies of success;

(c) Improve the effectiveness of consultative processes with non-governmental entities, especially through the establishment of consultative forums;

(d) Develop and promulgate models for partnership based on success, emphasizing the need for flexibility, practicality, adaptability, cost-effectiveness and accountability;

(e) Facilitate the process of sustainable development by coordinating the development of indicators and strategies for sustainability;

(f) Promote and support training programmes led by partner institutions;

(g) Encourage the promotion of awareness down to the grass-roots level and, especially through UNDP, support capacity-building;

(h) Encourage the establishment of electronic information networks as effective ways of publicizing the work being done and as a means for promoting cooperative action.

101. The non-governmental organization community should enhance its own capacity to contribute to partnerships with United Nations bodies by, inter alia, organizing themselves into representative coalitions and by inviting United Nations participation in their activities.

102. The Commission on Sustainable Development should evaluate national reports against models of effective sustainable development and suggest avenues of possible improvement to Governments, including benefits that may come by improvement in partnerships.

103. The United Nations should make the best of its publicity material to promote its role in sustainable development and project a more integrated image of its work. It should seek partnerships with potential commercial sponsors to ensure better distribution and with non-governmental entities which can do a great deal to publicize and promote the work of the United Nations.

V. ARRANGEMENTS FOR FUTURE WORK

104. The Board held extensive deliberations on its future work programme, including a full exchange of views with the Secretary-General, who requested the assistance of the Board in changing the perception of the general public that the United Nations was only about peace-keeping. He emphasized that the work of the organization on economic, social and environmental issues, in fact, absorbed the larger part of its regularly budgeted resources. The Board decided to focus preparations for its third session (17-21 October 1994) through three panels on

the themes outlined below. It agreed upon certain elements that ought to be considered by each panel but made it clear that the panels would be free to develop those themes in a broad context and to organize their work in a flexible way. The panels were expected to make use of materials emanating from the work of other bodies, to consult experts and organizations known to them, as appropriate, and to request an early reaction from the other members of the Board to a brief formulation of their anticipated findings.

A. Linkages between economic, social and political development in a changing world

105. Topics to be considered would include the flexibility of ecologically sustainable food production in countries experiencing rapid population growth and linkages to migration, the need for food aid, and the ability of some countries to respect commitments made in the convention on biodiversity; trade and environment; and linkages between trade and food security. The Board decided to convene a panel on these issues, composed of Emil Salim and Klaus Schwab (Co-chairpersons), Celso Lafer, Maria de los Angeles Moreno, Edouard Saouma and Mostafa Tolba.

B. Capacity-building: value-based education for sustainability

106. Among the issues which might be taken up under this heading were the inculcation of values conducive to sustainable development, the relative importance of developing educational materials for the different stages of formal education; the importance of networks for the exchange of information; and the issue of empowering groups which are the target beneficiaries of capacity-building programmes. The Board decided to convene a panel on these issues, comprising Tommy Koh and Stephan Schmidheiny (Co-chairpersons), Saburo Kawai, Bola Kuforiji-Olubi, Adele Simmons, Maurice Strong and Qu Geping.

C. Concrete ways of forging alliances

107. The Board proposed to continue to elaborate on this theme. Board members were encouraged to circulate to non-governmental entities, representatives of state and local governments, and individuals known to them, a questionnaire formulated by the Board (see annex I). In doing so, members of the Board were requested to attach special importance to contacts with organizations, including non-governmental organizations enjoying consultative status with the United Nations, representing major groups, such as business, labour, consumers, and state and local levels of government. To prepare its work on this matter for the third session of the Board, a panel was constituted with the following members: Jacques Cousteau and R. S. Pathak (Co-chairpersons), Martin Holdgate, Valentin Koptyug, Laura Novoa, Rita Levi Montalcini.

108. The Board decided that the panels would meet from 17 to 18 October 1994 immediately before the plenary session of the Board (19-21 October). Each member of the Board was invited to be associated with one of the three panels;

the Co-chairpersons, Bernard Chidzero and Brigitta Dahl, would rotate among the panels during their deliberations.

VI. ORGANIZATION OF THE SESSION

109. The second session of the High-level Advisory Board on Sustainable Development was held at United Nations Headquarters from 17 to 22 March 1994. Panel meetings were held on 17 and 18 March, and the plenary session of the Board was held on 21 and 22 March. Seventeen members of the Board attended: Bernard Chidzero, Brigitta Dahl, Martin Holdgate, Saburo Kawai, Tommy Koh, Valentin Koptyug, Bola Kuforiji-Olubi, Celso Lafer, Laura Novoa, R. S. Pathak, Qu Geping, Emil Salim, Edouard Saouma, Stephan Schmidheiny, Klaus Schwab, Adele Simmons and Mostafa Tolba. Four members were unable to attend: Jacques Cousteau, Rita Levi Montalcini, Maria de los Angeles Moreno, and Maurice Strong.

110. The officers elected at the first session for the term ending on 30 June 1995 were Bernard Chidzero and Brigitta Dahl (Co-chairpersons) and Martin Holdgate (Rapporteur).

111. The plenary was opened by the Under-Secretary-General for Policy Coordination and Sustainable Development. The Secretary-General addressed the Board and held a dialogue with them on 22 March 1994.

112. Preparations for the plenary session were carried out by the three panels of the Board, each of which had prepared intra-sessionally by means of correspondence among its members, with the Secretariat, and, in some cases, with experts known to the members themselves. The panel on linkages between economic, social and political development in a changing world comprised Emil Salim and Klaus Schwab (Co-chairpersons), Celso Lafer, and Mostafa Tolba. The panel on new approaches to finance and technology comprised Tommy Koh and Stephan Schmidheiny (Co-chairpersons), Saburo Kawai, Bola Kuforiji-Olubi, Adele Simmons, and Maurice Strong. The panel on the establishment of new partnerships between the United Nations system and other non-governmental entities comprised Jacques Cousteau and R. S. Pathak (Co-chairpersons), Martin Holdgate, Valentin Koptyug and Laura Novoa.

113. Substantive services for the session were provided by the Department of Policy Coordination and Sustainable Development.

Notes

1/ The term environmentally "sound" technology is a relative concept. The performance and environmental impact of technology may vary depending on the context of its application. It includes "process and product" technologies that generate low waste or use waste as a product for other processes. It may also include "end of pipe" technologies for waste treatment and minimization. The term "environmentally sound" also means "environmentally safe and sound".

2/ Partnerships are relationships entered into for a wide range of purposes, including information exchange, definition of goals and actions in a particular field, or joint action for the achievement of a common purpose. In the present case the common purpose is sustainable development.

3/ A non-governmental entity (the term is used in preference to "non-State actors" and "non-governmental organizations") is an organization or group outside national Government and its agencies. Such entities include scientific, economic, environmental and humanitarian organizations and also local and municipal authorities, labour organizations and business. They have constitutions, mission statements, action plans and formal administrative and financial processes.

Annex I

QUESTIONNAIRE ON PARTNERSHIP

Please complete the questionnaire below, after having read chapter IV, "Establishment of new partnerships between the United Nations system and non-governmental entities", of the report of the High-level Advisory Board on Sustainable Development on its second session.

1. Do you believe that partnerships or alliances between the United Nations system and entities active in the field of sustainable development would be an effective mechanism for assisting in the implementation of Agenda 21?

2. If the answer above is affirmative, what types of alliance do you consider likely to be most useful? Please describe them. As a guideline, consider the following check-list and indicate the level of usefulness you attach to each option:

(a) National forums/consultative mechanism/task forces that would enhance the input by your Government to the Commission on Sustainable Development:

not useful/useful/very useful

(b) International task force meetings on particular aspects of sustainable development, convened by the secretariats of United Nations bodies and enhancing their preparation of analyses and proposals for intergovernmental consideration:

not useful/useful/very useful

(c) Establishment by United Nations bodies of formal consultative forums or other machinery for contact with the non-governmental sector:

not useful/useful/very useful

(d) If (c) is to be supported, the consultative machinery should be open to all non-governmental organizations involving major and representative groupings in a particular area - e.g., law, local government, labour, humanitarian aid, conservation, science:

not useful/useful/very useful

(e) Opening of intergovernmental meetings in the United Nations system to non-governmental representatives as full participants:

not useful/useful/very useful

(f) More direct involvement of the United Nations system through one or more of its specialized bodies in conferences/task forces sponsored by major non-governmental organizations or Governments:

not useful/useful/very useful

(g) Development by the United Nations system of machinery for training of individuals from national Governments and the non-governmental organizations community so that they can contribute to the implementation of Agenda 21:

not useful/useful/very useful

(h) Direct participation by representatives of permanent United Nations bodies in initiatives undertaken by non-governmental organizations to promote on-the-ground action for the protection, conservation, clean-up or sustainable development of the environment:

not useful/useful/very useful

(i) Greater support by United Nations bodies of on-the-ground action for sustainable development by non-governmental organizations:

not useful/useful/very useful

(j) Direct participation by representatives of United Nations bodies in intergovernmental agreements (including bilateral agreements) designed to achieve sustainable development, thereby lending the visible support of the United Nations to such agreements:

not useful/useful/very useful

(k) Direct participation of relevant United Nations bodies in agreements between international private associations in order to give them support and orientation under the sustainable development principle:

not useful/useful/very useful

3. Please add any other comments you have on the way partnerships should be developed and return this questionnaire to:

Annex II

AGENDA

1. Opening of the session.

2. Adoption of the agenda.

3. Report of the first session of the Board.

4. Matters arising, not covered under other items.

5. New approaches to environmentally sound technology.

6. Establishment of new partnerships between the United Nations system and non-governmental entities.

7. Linkages between economic, social and political development in a changing world.

8. Consideration of opportunities for the Board to contribute to the work of the United Nations.

9. Organization of the work of the Board.

10. Adoption of the report of the Board on its second session.

Annex III

REPORT OF THE HIGH-LEVEL ADVISORY BOARD ON SUSTAINABLE DEVELOPMENT ON ITS FIRST SESSION

1. The High-level Advisory Board on Sustainable Development held its first (organizational) session at United Nations Headquarters, New York on 13 and 14 September 1993. The Secretary-General met with the Board on 14 September. Eighteen members of the Board attended: Bernard Chidzero, Jacques Cousteau, Brigitta Dahl, Martin Holdgate, Saburo Kawai, Tommy Koh, Valentin Koptyug, Bola Kuforiji-Olubi, Celso Lafer, Rita Levi Montalcini, Laura Novoa, R. S. Pathak, Qu Geping, Emil Salim, Stephan Schmidheiny, Klaus Schwab, Maurice Strong and Mostafa Tolba. Two members were unable to attend: Adele Simmons and Maria de los Angeles Moreno.

A. Election of Officers

2. The Board unanimously elected Bernard Chidzero as the Chair of the Board, Brigitta Dahl as the Vice-Chair and Martin Holdgate as the Rapporteur.

B. Terms of reference of the Board

3. The Board agreed on the following points:

(a) With regard to terms of reference (1), (2) and (3) (see appendix), the results of the Board's discussions should be addressed primarily to the Secretary-General to whom it had direct reporting responsibility and was directly accountable;

(b) When the Board felt the need to address intergovernmental bodies, such as the Commission on Sustainable Development, the Economic and Social Council or the General Assembly, it would so advise the Secretary-General and request him to convey its views/recommendations to such bodies;

(c) With regard to term of reference (4), it was important for the Board to address, through the Secretary-General, the United Nations system, including the Bretton Woods institutions, which were represented on the Administrative Committee on Coordination and were especially important in pursuing the goals of the Commission on Sustainable Development and sustainable development in general;

(d) Requests from intergovernmental bodies, including the Committee on Sustainable Development, for advice from the Board would be channelled through the Secretary-General;

(e) Terms of reference (5) and (6) were both innovative and very important. They were particularly significant in light of the broadly participatory nature of the Rio process which, it was felt, needed to be

continued and enhanced as a key element to the successful implementation of Agenda 21 - the achievement of sustainable development goals in general;

(f) In relation to term of reference (6), in particular, the Board would explore the possible development of a programme of measures aimed at keeping alive the Rio spirit, promoting better understanding of the Rio Agenda and advancing sustainable development. Members also considered that it would be incumbent on each of them to be "pro-active" in their respective constituencies and through their own professional activities. When the Board has agreed on an issue, members can speak in furtherance of the Board's position. When there is no common position, they will clearly speak as individuals guided by the Board's general approach;

(g) Generally, optimal use of the Board's capacity to assist the Secretary-General and the United Nations would require, on its part, not only a degree of flexibility in operating within its terms of reference but also creativity, originality and a forward-looking approach.

C. Future work of the Board

4. After extensive discussions, and guided especially by the request of the Secretary-General for help in demonstrating the United Nations concern to promote sound and sustainable economic and social development, the Board decided to focus its efforts initially on three broad themes:

(a) Linkages between economic, social and political development in a changing world;

(b) New approaches to finance and technology;

(c) Establishment of new partnerships between the United Nations system and other bodies active in the field of sustainable development.

5. The Board agreed to establish panels of its members on each of the themes. It indicated a wide range of topics that might be considered by each panel, while making it clear that the panels would be expected to focus their analysis on one or two key elements, chosen by them. The panels would work by electronic and other communication, would consider the various studies and initiatives being undertaken by other bodies, would consult experts and organizations known to them, when appropriate, and would report to meetings of the Board.

Panel A. Linkages between economic, social and political development in a changing world

Co-Chairs: Klaus Schwab and Emil Salim

Panel members: Mostafa Tolba and Celso Lafer

Topics to be considered would include the fundamental relationship between environment, development, poverty and security; the social and cultural

dimensions of sustainable development (including equity between groups and generations, and the need to empower communities); the need for new global economic and trading systems; the need for quantifiable and measurable indicators of sustainable development; and the crucial role of political development, democratization and dependable government.

Panel B: New approaches to finance and technology

Co-Chairs: Stephan Schmidheiny and Tommy Koh

Panel members: Bola Kuforiji-Olubi, Maurice Strong, Saburo Kawai

Topics to be considered would include innovative methods of financing and securing resource and technology transfer; the importance of developing and sharing new technology (especially "eco-efficient" processes); and the development of new modes of capacity-building. The aim was to avoid the damage caused by inappropriate technology transfer. South/South and South/North sharing of experience would be of particular value.

Panel C: Establishment of new partnerships between the United Nations system and other non-State actors

Co-Chairs: Jacques Cousteau and R. S. Pathak

Panel members: Laura Novoa, Valentin Koptyug and Martin Holdgate

The panel would address the Secretary-General's concern that the contribution of the United Nations to economic and social development was neither widely known nor properly understood. Topics to be considered would include the need to find ways of enriching the United Nations system by building productive partnerships with non-United Nations bodies; the need to make the United Nations more open to its partners; the need to promote and draw on practical and effective partnerships throughout society; how to publicize the work of the United Nations better; and how to ensure a flexible, adaptive, practical and cost-effective approach.

D. Methods and organization of work

6. The Board agreed that in order to maintain momentum, not more than six months should elapse between the first and second meetings. The panels would work by correspondence during the interval. Resource and time constraints led the Board to decide that its second meeting, scheduled for 17-22 March 1994, would be in two parts: panel meetings on 17 and 18 March; the meeting of the Board on 21 and 22 March. The intervening weekend would be used to prepare panel reports. This timetable would allow for a report to be provided through the Secretary-General to the Commission on Sustainable Development for its meeting in May.

Appendix

TERMS OF REFERENCE

1. To give broad consideration to issues related to the implementation of Agenda 21, taking into account the thematic multi-year programme of work of the Commission on Sustainable Development, and to provide expert advice in that regard to the Secretary-General and, through him, to the Commission, the Economic and Social Council and the General Assembly. a/

2. To provide high-level advice, proposals and recommendations on issues and themes to be addressed by the Commission on Sustainable Development and the Commission's high-level meetings. b/

3. To bring to the attention of the Secretary-General and, through him, to that of relevant intergovernmental bodies emerging problems related to sustainable development and possible ways and means for resolving them. b/

4. To provide the Secretary-General and, through him, the Administrative Committee on Coordination with its views on the expectations and concerns of major constituencies and groups on sustainable development issues and on the contribution of the United Nations system in addressing those issues. b/

5. To contribute to the building of partnerships between the United Nations and the scientific, business and academic communities and major non-governmental groups. b/

6. To promote knowledge and understanding of and mobilize support for United Nations activities in the area of environment and development throughout the constituencies and groups represented by its members. b/

Notes

a/ General Assembly resolution 47/191 of 22 December 1992, para. 29.

b/ See "High-level Advisory Board on Sustainable Development: report of the Secretary-General" (E/1993/15/Rev.1, 27 April 1993), para. 6.

Annex IV

CURRICULA VITAE

Chairman: Bernard Chidzero (Zimbabwe). Senior Minister of Finance, Economic Planning and Development. Other posts held include Deputy Secretary-General of UNCTAD; Resident Representative, United Nations Development Programme. Received professional education in Canada and United Kingdom (Economics).

Vice-Chairperson: Brigitta Dahl (Sweden). Member of Parliament. Member, Executive Committee of the Social Democratic Party. Member, Advisory Council on Foreign Affairs. Past posts include Minister of Environment (1990-1991), Minister of Environment and Energy (1986-1990), Minister of Energy (1982-1986). Received professional education in Sweden (History and Political Science).

Rapporteur: Martin Holdgate (United Kingdom). President, Zoological Society of London. Past posts include Director General, World Conservation Union (IUCN) (1988-1994); Chief Environment Scientist and Deputy Secretary, Environment Protection, Department of Environment (United Kingdom) (1976-1988); President, Governing Council, UNEP (1983-1984). Received professional education in the United Kingdom (Zoology). Author of A Perspective of Environmental Pollution (1979) and joint editor of two major UNEP volumes on the state of the world environment, 1972-1982 and 1972-1992.

Members:

Jacques Yves Cousteau (France). Chairman, Council on the Rights of Future Generations; President, the Cousteau Society. Past posts include Director of the Musée océanographique. Received professional education in France (Naval Science and Ocean Ecology). Member, Académie Française. Recipient of numerous awards and honorary degrees for work on the environment. Director of three feature films on oceans. Author or co-author of more than 50 books, the most recent of which is Jacques Cousteau/Whales (1988).

Saburo Kawai (Japan). Chairman and President, International Development Centre of Japan. Member, Organizing Committee, Earth Council. Past posts include President, Sasakawa Peace Foundation; Board member, Stockholm Environment Institute; Vice-Chairman and President, Keizai Doyukai. Received professional education in Japan and the United States (Law and Economics).

Tommy Koh (Singapore). Ambassador-at-Large, Ministry of Foreign Affairs. Past posts include Permanent Representative to the United Nations; Ambassador to the United States and Mexico; High Commissioner to Canada; Professor and Dean, Faculty of Law, Singapore University; President, Third United Nations Conference on the Law of the Sea; Chairman, Preparatory Committee for and Main Committee of the United Nations Conference on Environment and Development. Received professional education in Singapore, the United States (Law) and the United Kingdom. Author of several articles on law of the sea, international relations, environment and development, United Nations and negotiations.

Valentin Koptyug (Russian Federation). Director, Institute of Organic Chemistry (Novosibirsk). President, Siberian Branch, Russian Academy of Sciences. Past posts include Rector, Novosibirsk State University; Professor (Chair) of Organic Chemistry. Received professional education in the former USSR (Chemistry). Author of numerous scientific papers and monographs in the fields of organic chemistry and general problems of the environment; founded the journal Chemistry for Sustainable Development (1993).

Bola Kuforiji-Olubi (Nigeria). Honourable Secretary of Commerce and Tourism, Federal Ministry of Commerce and Tourism; Chairperson, Business Council for Sustainable Development, Nigeria.

Carlos Lafer (Brazil). Professor and Department Head, Public International Law and Jurisprudence, University of São Paulo. Board member, Metal Leve S/A Industria e Comercio. Past posts include Minister for Foreign Affairs; Head of Brazilian delegation to the tenth session of the Intergovernmental Committee for Science and Technology. Expert adviser in the area of science and technology. Received professional education in Brazil and the United States (Law and Political Science). Author of many books and articles in the area of international economic law, international relations, jurisprudence and political theory.

Rita Levi Montalcini (Italy). Super-expert, Institute of Neurobiology, National Research Council (CNR). Past posts include Director, Cellular Biology Laboratory (CNR). Professor of Neurobiology, Institute of Biology, Washington University. Received professional education in Italy (neurobiology). Received Nobel Prize in Medicine/Physiology and numerous honorary degrees. Author of numerous monographs in the field of neurobiology.

Maria De Los Angeles Moreno (Mexico). Member of Congress. Past posts include Subsecretary of Evaluation, Secretariat of Programming and Budgeting; Subdirector of Planning, Division of Employment, UCECA; Subdirector of Studies on Income Distribution, Secretariat of Labour. Received professional education in Mexico and the Netherlands (Socio-economic Planning). Author of Women in the Mexican Economy (1966).

Laura Novoa (Chile). President, PARTICIPA. General Counsel and member of Executive Committee, member of the law firm Philippi, Yrarrazaval, Pulido and Brunner (banking, foreign investment, mining, corporate law); member, Comision Verdad Reconciliation. Received professional education in Chile and the United States (Law).

R. S. Pathak (India). Chairman, Indian National Steering Committee in Leadership in Environment and Development Programmes; Editor-in-Chief, Indian Journal of International Law. Past posts include Judge, International Court of Justice at The Hague; Judge, Supreme Court of India; Chief Justice, Supreme Court of India; Chief Justice, Himachal Pradesh High Court. Received professional education (Law) in India. Author of many research papers on international law, the law of the sea and other subjects, including Environmental Change and International Law: New Challenges and Dimension (1993).

Qu Geping (China). Chairman, Environmental Protection Committee, National Peoples' Congress. Past posts include Vice-Chairman, Environmental Protection Commission, State Council Administrator, Environmental Protection Agency, China. Head of China's Mission to UNEP. Received professional education (Engineering) in China and the United Kingdom. Author of numerous publications on environmental issues, including China's Environment and Development (1993); Studies on Environmental Services in China.

Emil Salim (Indonesia). Minister of State for Population and the Environment. Past posts include Minister of State for Development Supervision and the Environment; President, Governing Council of UNEP; Professor in Economics, University of Indonesia. Received professional education in Indonesia and the United States (Economics). J. Paul Getty award (United States World Wild Life Fund). Author of Pemerataan Pendapatan and Perencanaan (1978); Pembangunan Berwawasan (1986).

Edouard Saouma (Lebanon). Former Director-General, Food and Agriculture Organization of the United Nations. Past posts include Minister of Agriculture, Fisheries and Forestries (1970). Received professional education in Lebanon and France (Agronomy). Recipient of numerous awards and honorary degrees for his work in agriculture.

Stephan Schmidheiny (Switzerland). Chairman of the Board, ANOVA Holding Ltd., UNOTEC Holding Ltd., NUEVA Holding Ltd. (a family-owned multinational investment group); Board member, ABB Asea Brown Boveri, SMH Swiss Corporation for Microelectronics and Watchmaking Industries, Union Bank of Switzerland and Nestle. Founder and Chairman, Business Council on Sustainable Development. Received professional education in Switzerland and Italy (Law). Author of Changing Course: A Global Business Perspective on Development and the Environment (1992).

Klaus Schwab (Germany). President of the Board, World Economic Forum Foundation; Professor of Business, University of Geneva. Past posts include General Manager, Escher WYSS, S. A.; Professor, International Management Institute. Received professional education in Switzerland (Engineering and Economics). Author of five books and numerous articles on global competitiveness and other issues.

Adele Simmons (United States). President, the John D. and Catherine T. MacArthur Foundation. Member of the President's Commission on Environmental Quality; Member of the Boards of Directors, First Chicago Corporation and the Marsh Mclennon Companies. Past posts include President, Hampshire College, Amherst, Massachusetts. Received professional education in the United States and United Kingdom (Political Science). Recipient of numerous honorary degrees. Author and co-author of numerous articles on Africa, women, education and public policy, including Modern Mauritius (1982) and Exploitation from 9 to 5: the Twentieth Century Fund Task Force Report on Working Women (1971).

Maurice Strong (Canada). Chairman and Chief Executive Officer, Ontario Hydro. Past posts include Secretary-General, United Nations Conference on Environment and Development; Under-Secretary-General and Executive Coordinator, the United

Nations Office for Emergency Operations in Africa; Director, United Nations Environment Programme; President and Chief Executive Officer, Petro-Canada; Chairman, Board of Governors, International Development Research Centre (IDRC), Canada. Received professional education in Canada (Business). Recipient of numerous awards and honorary doctorates.

Mostafa Tolba (Egypt). Professor, Faculty of Science, Cairo University. President, ECOPAST, Centre for Environment and Cultural Heritage, Washington, D.C.; President, International Centre for Environment and Development. Past posts include Under-Secretary-General and Executive Director, United Nations Environment Programme (UNEP); Head, Egyptian delegation to the Stockholm Conference on Human Environment (1972). Received professional education in Egypt and the United Kingdom (Botany). Author of numerous papers on plant diseases, anti-fungal substances and physiology of micro-organisms and on the environment, including Sustainable Development: Constraints and Opportunities (1987).

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GENERAL DISCUSSION ON PROGRESS IN THE IMPLEMENTATION OF AGENDA 21, FOCUSING ON THE CROSS-SECTORAL COMPONENTS OF AGENDA 21 AND THE CRITICAL ELEMENTS OF SUSTAINABILITY

Note verbale dated 7 April 1994 from the Permanent Representative of Norway to the United Nations addressed to the Secretary-General

The Permanent Representative of Norway to the United Nations presents his compliments to the Secretary-General of the United Nations and has the honour to submit a copy of a letter from the Minister of the Environment of Norway, Mr. Thorbjørn Berntsen, addressed to the Chairman of the Commission on Sustainable Development, His Excellency the Ambassador Ismail Razali, together with a copy of a brief summary report of the Symposium on Sustainable Consumption, held in Norway on 19 and 20 January 1994.

The high-level meeting of the first session of the Commission on Sustainable Development accepted the offer of the Minister to host this Symposium and to report back on the results. The summary report seeks to sum up main issues and proposals. It does not attempt to present an agreed common view. The contributions from the speakers at the Symposium as well as material provided for the Symposium by invited organizations are being reproduced in full and will be ready in time for the second session of the Commission in May. As a supplement to this report a shorter paper setting out issues raised at the Symposium has been prepared. Both documents are in English and will be made available to all delegations to the Commission. In addition, Mr. Thorbjørn Berntsen will present key ideas from the Symposium in a statement to the Commission in May.

In this letter, Mr. Thorbjørn Berntsen suggests that the enclosed brief summary report be made available in advance of the upcoming session of the Commission as an official conference document.

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* E/CN.17/1994/1.

ANNEX

Letter dated 28 March 1994 from the Minister of the Environment of Norway addressed to the Chairman of the Commission on Sustainable Development

I have the honour to transmit to you the enclosed brief summary report of the Symposium on Sustainable Consumption, held in Norway on 19 and 20 January 1994. It seeks to sum up main issues and proposals; it does not attempt to present an agreed common view. As you will recall, the high-level meeting of the first session of the Commission on Sustainable Development accepted my offer to host this Symposium and to report back on the results.

The contributions from the speakers as well as material provided for the Symposium by invited organizations are being reproduced in full and will be ready in time for the meeting of the Commission. As a supplement to this full report, a shorter paper setting out issues raised at the Symposium has been prepared. Both documents are in English and will be made available to all delegations.

Owing to the length of both these documents, we assume that it will be impractical to translate them into the working languages of the United Nations. I will, however, present key ideas to the Commission when it meets in May, and would appreciate it if the enclosed brief summary could be made available in advance as an official conference document.

(Signed) Thorbjørn BERNTSEN

Appendix

SUMMARY REPORT: THE SYMPOSIUM ON SUSTAINABLE CONSUMPTION

Oslo, 19 and 20 January 1994

Background

Agenda 21 states that the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances (para. 4.3). Agenda 21 further notes that developed countries should take the lead in achieving sustainable consumption patterns (para. 4.8 (b)).

At the high-level meeting of the first session of the Commission on Sustainable Development in June 1993, Norway offered to host a meeting on sustainable consumption, as a first step towards the follow-up of the relevant recommendations in Agenda 21. Norway also undertook to present the background papers and a summary report from the meeting as a contribution to the discussions at the forthcoming session of the Commission in May 1994.

The agenda of the Symposium is attached. The Symposium focused on the industrialized countries and covered overall aspects of sustainable consumption including key areas such as energy and transport. It discussed possible indicators of progress made and how to achieve necessary changes, addressing the questions. What can and should each sector of society do? What can and should Governments do nationally? What can be achieved through international cooperation?

The main Symposium round-table meeting involved 40 participants, mainly from the Organisation for Economic Cooperation and Development (OECD) countries. The President of Iceland, the Prime Minister of Norway, and Ministers from the Netherlands, Sweden, Finland and Norway, as well as high officials, eminent experts and representatives of key organizations and sectors, participated. Forty observers also attended.

Results

The contributions of the speakers as well as material prepared for the Symposium by invited organizations have been reproduced in full. The papers will provide a wide range of facts, concepts and suggestions for further work. They are available to all delegations at the session of the Commission. Norway hopes that this material will enrich the deliberations and promote the follow-up, both nationally and internationally.

As a supplement to the Symposium papers, a summary of the main issues and of the proposals made during the Symposium is also being made available to all delegations.

The Symposium confirmed that there is broad international agreement that the matter of changing unsustainable patterns of production and consumption must be tackled on a priority basis. The industrialized countries should assume a leading role, but all Governments as well as non-governmental organizations must cooperate in the process of change. Encouraging processes are taking place, but these are too few and fall far short of the magnitude of effort needed.

There was a broad consensus that there is a need for a detailed analysis of the relationship between production and consumption patterns and their environmental, economic and social impacts. To ensure progress towards this end, both Governments and appropriate international institutions should commit themselves to working together and giving the highest priority to the areas where change will have most effect. The main thrust of the discussion included the following points:

(a) Studies are needed of trends in and damage from patterns of consumption and production, notably of energy use, transport, waste production, and use of renewable and non-renewable natural resources, to assess their sustainability;

(b) Studies are needed on the effects that consumption and production patterns in one country have on other countries. The studies should clearly identify global, regional and local impacts and the issues of equity and "environmental space" should be examined;

(c) Based on these studies, priorities must be set so that the most damaging effects of unsustainable consumption patterns can be addressed. Past damage must be alleviated but a main task is to avoid building up new "environmental debts". Some problems connected with the consumption of a product can be more easily solved at the production stage; other problems can be solved only by reducing the volume and pattern of consumption. In the chain from design and raw material extraction through use to final disposal, actions must be taken at the points where they are most effective;

(d) Many countries already have practices and infrastructure that lead to consumption with low environmental impacts. When modernizing their economies, this should be preserved;

(e) Studies are needed on the relative effectiveness of a spectrum of instruments for changing unsustainable patterns. This would encompass regulatory and administrative instruments, economic instruments (including the removal of subsidies), voluntary measures such as industry targets and standards, management tools, eco-labelling and other measures to increase public awareness and participation;

(f) Enough experience exists to support an increase in "green taxes" and user charges; this would allow for corresponding reductions of other taxes. If used to reduce taxes on labour, this would stimulate employment. Pricing policies in general as well as liability rules should internalize the environmental costs of risk and damage;

(g) Enough experience also exists to indicate that the use of voluntary measures such as International Organization for Standardization (ISO) quality control and production standards, the use of green auditing and transparent and differentiated green labelling should increase;

(h) To achieve more sustainable energy use, the cost and environmental results from demand-side measures to increase efficiency and reduce consumption should be considered at the same time as expansion of capacity is evaluated. Similar reasoning should apply to transport and waste. One the supply side, renewable energy sources should be given special consideration;

(i) Expanded programmes are needed on education, training, public awareness and participation;

(j) Pilot projects to demonstrate the effect of changed consumption patterns should be supported and the results should be made widely available. The need for cooperative approaches to solving problems, including through technology cooperation and transfer and by changes to existing trade patterns, should be studied;

(k) Indicators to measure progress towards the goal should be developed;

(l) Governments should publish periodic reports on progress made towards sustainable consumption. These reports could be assessed by the Commission.

Further work

The Commission on Sustainable Development may wish to consider launching a broad cooperative process inside and outside the United Nations system involving Governments, industry, and research and voluntary organizations. This could focus on unsustainable patterns of production and consumption as well as on the development of national policies and strategies to encourage changes.

On the basis of the discussions at the Commission, Ministers may agree to:

(a) Establish a network among interested countries for exchanging information on practical experience in promoting sustainable consumption;

(b) Establish a task force of experts designated by interested Governments to prepare a work programme to be considered at the next high-level meeting of the Commission. The report should give recommendations on ways and means to achieve more sustainable patterns of production and consumption involving both the private and public sectors. The report could take advantage of experience, data and analysis provided, inter alia, by the OECD countries.

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REVIEW OF SECTORAL CLUSTERS, FIRST PHASE: TOXIC CHEMICALS AND HAZARDOUS WASTES

Radioactive wastes

Report of the Secretary-General

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INTRODUCTION

1. The Economic and Social Council, in its decision 1993/314 of 29 July 1993, approved the provisional agenda for the second session of the Commission on Sustainable Development. Item 6 (b) of the agenda provided for a review of sectoral clusters, first phase: toxic chemicals and hazardous wastes (including radioactive wastes).

2. As set forth in the report of the Commission on Sustainable Development on its first session, 1/ the Secretary-General was requested to prepare analytical reports for future sessions of the Commission. It was stated that thematic reports (such as the present one, corresponding to the Agenda 21 2/ sectoral clusters to be included on the agendas of forthcoming sessions of the Commission, should include, information, inter alia, on the main activities that countries were undertaking or planning. 3/ In order to give the United Nations Secretariat sufficient time for the analysis of information received, the Commission encouraged Governments to submit their information not less than six months prior to the Commission's sessions. 4/ Unfortunately, the Secretariat had received only a few national reports at the time of the preparation of this report. The coverage is therefore far from complete.

I. GENERAL OVERVIEW

3. The past four decades have witnessed sharp accumulations of radioactive wastes generated from nuclear weapons programmes, electric power generation and nuclear applications in medicine, and the production of radioisotopes. Radioactive wastes have radiologic and safety risks, which vary considerably according to whether the wastes are low-, intermediate- or high-level and whether they are short- or long-lived. It is estimated that about 200,000 cubic meters of low- and intermediate-level wastes and 10,000 cubic metres of high-level wastes are generated annually (1991) from the nuclear power fuel cycle. Estimates of radioactive wastes (high-level) from nuclear weapons programmes are not readily available, although their magnitude is bound to be high. The high-level waste, whose composition is about 99 per cent radionuclides, represents the largest radiologic risk. It presents the biggest management problems with regard to safe, permanent disposal, given that most have long half-lives (millions of years). In this respect, it has been reported that since the Second World War, the United States of America, the former Union of Soviet Socialist Republics, China, the United Kingdom of Great Britain and Northern Ireland and France have together produced a large number of nuclear warheads. Disarmament agreements among the nuclear powers call for a reduction and dismantling of nuclear warheads with costs estimated at $1 billion per year for the United States alone. What will ultimately happen to the fissile materials once warheads are removed remains unclear. Neither the United States nor the Russian Federation has available currently facilities either to store plutonium permanently or to dispose of it in a way that does not pose dangers to future generations. 5/

4. The generation of radioactive wastes from electric power stations is likely to increase. In addition, more countries will be involved (see table). That many of the countries with nuclear powerplants do not have the capacity to reprocess spent nuclear fuel thus necessitates transportation to processing facilities in other countries with consequent safety implications and potential unauthorized diversion.

5. The disposal of high-level waste presents major problems, and although many studies have been done, the achievement of a permanent safe disposal site has remained an elusive goal. Where such sites have been identified, there are still nagging questions as to whether they are adequate to deal with the sheer mass of the waste. At present, radioactive wastes from nuclear powerplants are stored on site but some storage facilities at these sites are reaching full capacity, thus necessitating storage elsewhere or the shut-down of the plants. 6/ The original intention was that at-reactor-storage would be temporary until permanent facilities could be established. However, in the United States for example, the proposed permanent facilities at Yucca Mountain may not be ready for at least 10-20 years. Similarly, it is reported that early in the next century the storage capacity of Argentina's three nuclear powerplants will reach its limit, and the country will have to decide on where to place the radioactive waste. 7/ France, which depends more than any other country on nuclear energy, also faces serious radioactivity disposal problems and has had to relaunch long-stalled attempts to find a deep storage site for waste from its 57 reactors. 8/ Challenges also abound with regard to the sites for low-level wastes. There are simply not that many sites available. To this must be added the problem of local resistance to the location of sites. The costs for the disposal of medium-level waste have been rising steadily over the years, and estimates of future costs vary widely.

6. Decommissioning nuclear powerplants also constitutes a major headache. Estimates of decommissioning costs are high and steadily rising - of the order of billions of dollars per plant. For example, the projected costs of decommissioning the United Kingdom's Magnox reactors are reported to have increased from 2.5 billion pounds in 1988 to 4.8 billion pounds a year later. 9/ The structures and associated wastes will be unsafe for millions of years. Future generations will have to live with future nuclear structures or waste disposal sites left by current and immediate past generations or undertake the final stage of decommissioning, clean-up of sites and disposal of wastes. 10/ According to some experts, decommissioning of nuclear powerplants may be accelerated for a variety of technical and economic reasons as well as because of difficulties in the disposal of radioactive wastes. It has been reported that in the United States nuclear facilities were licensed by the Nuclear Regulatory Commission (NRC) to operate for a supposed 40-year life cycle but the 15 plants closed so far were open for an average of only 12.7 years. 11/

7. The problems associated with radioactive waste management and disposal are complex and multifaceted, touching on scientific, technical, geologic, economic, social, health, environmental, political and intergenerational factors. Developing countries are constrained by lack of funds, weak institutions and infrastructures, and dearth of trained and skilled scientific and technical manpower. They will require assistance from the international community in addressing these problems.

Status of nuclear power around the world

	In operation		Under construction	
	Number of units	Total net megawatts (MW)	Number of units	Total net megawatts (MW)
Argentina	2	935	1	692
Belgium	7	5 484		
Brazil	1	626	1	1 245
Bulgaria	6	3 538		
Canada	21	14 874	1	881
China	1	288	2	1 812
Cuba			2	816
Czech Republic	4	1 632	2	1 784
Finland	4	2 310		
France	56	57 688	5	7 125
Germany	21	22 559		
Hungary	4	1 729		
India	9	1 593	5	1 010
Iran (Islamic Republic of)			2	2 392
Japan	44	34 238	9	8 129
Kazakhstan	1	135		
Lithuania	2	2 760	1	1 380
Mexico	1	654	1	654
Netherlands	2	504		
Pakistan	1	125		
Republic of Korea	9	7 220	3	2 550

	In operation		Under construction	
	Number of units	Total net megawatts (MW)	Number of units	Total net megawatts (MW)
Romania			5	3 155
Russian Federation	28	18 893	18	14 175
Slovakia	4	1 632	4	1 552
Slovenia	1	632		
South Africa	2	1 842		
Spain	9	7 101		
Sweden	12	10 002		
Switzerland	5	2 952		
United Kingdom of Great Britain and Northern Ireland	37	12 066	1	1 188
Ukraine	15	13 020	6	5 700
United States of America	109	98 729	3	3 480
Total a/	424	330 651	72	59 720

Source: International Atomic Energy Agency (IAEA) Bulletin, vol. 35, No. 3 (1993).

Note: The data reflect status at the end of 1992 as reported to IAEA. For the United States the table does not reflect the reported shut-down of one plant in February 1993.

a/ Including Taiwan Province of China, where six reactors totalling 4,890 MW are in operation. In 1992 they accounted for 35.4 per cent of the total electricity generated there.

II. REVIEW OF PROGRESS ACHIEVED IN THE PROGRAMME AREA OF CHAPTER 22 OF AGENDA 21

Promoting the safe and environmentally sound management of radioactive wastes

8. The objective of the programme area of chapter 22 of Agenda 21 is to ensure that radioactive wastes are safely managed, transported, stored and disposed of, with a view to protecting human health and the environment, within a wider framework of an interactive and integrated approach to radioactive waste management and safety.

1. International cooperation

9. The International Atomic Energy Agency (IAEA) is the main operator in this field. 12/ It has restructured its radioactive waste management programme which now emphasizes the improvement of awareness of member States regarding the need to link closely the use of nuclear material with the requirements of a national waste management system. IAEA has initiated a special project, linked with the Waste Management Advisory Programme (WAMAP), which has provided advice on locating missing radioactive substances, on developing a standardized design for conditioning an interim storage facility for steamed fuel and on operating a database registry to track such sources. Several missions have been undertaken to assist developing countries in establishing and improving national radioactive waste management programmes.

10. IAEA has also provided guidance on minimization of radioactive waste from the nuclear fuel cycle, on advanced technologies for processing radioactive wastes and on policy regulation and planning for the decommissioning of nuclear facilities. The organization's Radioactive Waste Safety Standards (RADWASS) programme has given priority to the review for publication of waste management safety fundamentals and safety standards. Many documents have been and will be published in the following areas: planning, predisposal, near-surface disposal, geologic disposal, uranium/thorium mining and milling wastes, and decommissioning. The target is to publish about 10 high-priority RADWASS publications, depending on budget availability of resources.

11. IAEA is cooperating with Norway and the Russian Federation to investigate and assess radiologic impacts of the dumping of high-level radioactive wastes in the shallow waters of the Kara and Barents seas; such investigation will include the feasibility of remedial actions. The organization is also exploring ways and means of assisting countries in the northwest Pacific, in particular the Sea of Japan to address the issue of the reported dumping of radioactive wastes in that area.

12. IAEA General Conference, at its thirty-seventh session, held in October 1993, requested the Director-General to initiate preparations for a convention on the safety of waste management as soon as the ongoing process of developing waste management safety fundamentals has resulted in a broad international agreement. The General Conference also invited the agency's Board

of Governors and the Director-General to maintain the emphasis given to radioactive waste management, especially RADWASS, and to consider further means to enhance international cooperation in the field, including the assessment and the impact of land and sea disposal of waste.

13. The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) was amended in November 1993 in order to convert the voluntary moratorium on ocean dumping of all radioactive waste into a binding prohibition. The amendments entered into force in February 1994 and IAEA has been requested by the contracting parties to the Convention to develop quantitative limits for the exempt levels of radioactivity.

14. Meanwhile, the International Maritime Organization's (IMO) 18th Assembly (November 1993) adopted the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Waste in Flasks on Board Ships (the Irradiated Nuclear Fuel (INF) Code). The Code had been finalized by a joint IAEA/IMO/United Nations Environment Programme (UNEP) Working Group as called for in Agenda 21's Chapter 17 concerning, inter alia, protection of the oceans. The IMO Assembly, in a resolution adopting the Code, requested IMO in consultations with IAEA to consider, as a matter of high priority, relevant aspects of the transport of INF and other nuclear materials that are complementary to those covered in the INF Code, all these aspects taking into account the recommendations of the above-mentioned Working Group and the objectives of chapters 17 and 22 of Agenda 21.

15. A number of countries have reported on their ongoing or planned activities. Canada actively participates in international bodies such as IAEA, the Nuclear Energy Agency (NEA) of the Organisation for Economic Cooperation and Development (OECD), the International Commission on Radiological Protection, and the International Maritime Organization (through the London Convention).

16. The United States participates in radioactive waste management at the international level through information exchange and cooperative activities. It is a member of IAEA and participates in a number of the latter's activities, including RADWASS, the International Radioactive Waste Management Advisory Committee (INWAC), the Packaging and Transportation of Radioactive Materials (PATRAM), symposium, and the coordinated research programme in the behaviour of spent fuel and storage facility components during long-term storage (BEFAST). The United States, through the Department of Energy, also supports the activities of the Waste Management Advisory Programmes (WAMAP) which provides technical assistance to developing countries. As an active participant in IAEA activities, the United States supports efforts to develop safety standards, guidelines and codes of practices.

17. The United States is participating in the discussion on the possible changes to the London Convention dealing with ocean dumping of radioactive wastes. It is also engaged in a cooperative project with IAEA on radon exposure assessment, expected to be completed in 1994. A number of projects have been proposed for future joint Environmental Protection Agency (EPA)/Department of Energy cooperation. These include environmental remediation and risk management assistance to countries in economic transition and successor States of the

former Soviet Union. A second proposal for joint cooperation between the same agencies involves assessing the risks posed by radioactive waste packages and decommissioned nuclear reactors dumped in the Kara and Barents seas.

18. The Department of Energy also routinely exchanges information with other countries on radioactive waste management activities and promotes international understanding and consensus on radioactivity issues. To this end, it has entered into numerous agreements with countries, including Sweden (to conduct experimental and analytical work at the Hard Rock Laboratory); Spain (to exchange information on geologic site characterization, repository design and radioactive storage); Japan (in the areas of cooperative research on radionuclide transport; robotics, separation, site characterization etc.); Canada (in the areas of site characterization, laboratory testing, performance assessment); and Switzerland (in the area of site characterization). It is currently funding an exchange programme under a memorandum of cooperation with the Russian Federation in several areas including vitrification, containment transport modelling, separation technologies and academic programmes. EPA is actively involved and participates in international policy activities concerned with radiation protection and waste management issues.

19. The United States also participates in the activities of the Nuclear Energy Agency and has been active in the International Radioactive Waste Management Committee which reviews and gives directions to NEA project activity. The United States is a charter member of the International Education Alliance for Education in Radioactive Waste Management, formed in April 1992 with the aim of fostering science literacy in radioactive waste management through international collaboration in education. Other charter members of the alliance are NEA, Austria, Canada, Spain, Sweden, Switzerland and the United Kingdom.

2. Country experience

20. Canada has long had mechanisms to control radioactive wastes and has pursued initiatives in response to technical issues and public concern. In 1989, an independent panel was appointed to conduct an environment assessment and review the concept of disposing of nuclear wastes in the granite rock of the Canadian shield.

21. At the present time, producers of low-level radioactive wastes have to develop their own storage and disposal facilities. The Atomic Energy Canada Unit, a federal government corporation, is planning a demonstration unit of a near-surface disposal facility for its own wastes and those received from source-level producers. A task force was established in 1988 to find a disposal facility for a large proportion of the existing inventory of low-level radioactive wastes in the country - the so-called historical wastes.

22. Past and present research conducted by the industry and the federal Government provides a sound basis for evaluating potential environmental impacts. Nuclear issues in Canada are managed by the Atomic Energy Control Board (AECB); it has established regulatory criteria for decommissioning wastes. Large volumes of wastes are involved and AECB is ensuring that uranium companies fulfil their obligations to clean up the wastes. Recently, the Federal

Environment and Assessment and Review Office established an independent panel to review the decommissioning of uranium tailings in Ontario.

23. Finland has legislation on nuclear waste management according to which each producer of nuclear waste is responsible for the safe management and disposal of the waste and for financing these operations. The Ministry of Trade and Industry oversees and controls proper planning and timely implementation of nuclear waste management programmes. The Finnish Centre for Radiation and Nuclear Safety is responsible for nuclear safety and waste management. The preparations for the future disposal of domestic spent fuels are being undertaken by Teollisunden Voima Oy, a Finnish utility; to this end it has undertaken investigations of disposal sites and identified three sites for more in-depth study. The spent fuel from the Imatran Vioma Oy plant is transported back to Russia, in line with the supply contract.

24. IAEA, at the request of Finland, reviewed, in August 1993, the country's waste management programme. The review covered research and development, by both industry and the Government, with particular emphasis on spent fuel management; the results will be used in the planning and implementation of future research and development.

25. Issues on radioactive wastes have been of concern to Hungary since the commissioning of the nuclear power station in the country. According to the 1980 act of parliament on nuclear energy, licences for construction, operation and related activities shall not be granted unless sufficient measures are taken for the safe storage of radioactive wastes.

26. The Ministry of Public Welfare is responsible for licensing the disposal of wastes. So far no suitable disposal site has been found for the radioactive waste from the nuclear energy plant. An interministerial project was established, involving the Ministries of Industry and Trade, Environment and Regional Policy, and Public Welfare; the National Committee for Technical Development; the Hungarian Atomic Energy Commission; and the Hungarian Power Company. The first phase of the project is to determine the outlines of the strategy for the management and disposal of radioactive waste including spent fuels; it will set financial, technical and regulatory standards and guidelines covering: (a) elaboration of criteria for site selection and waste forms and for the performance of the disposal facility; (b) selection of disposal technologies and sites suitable for disposal of radioactive wastes; (c) quick screening of the country to find potential regions for high- and low-level waste disposal; (d) assuring of the financial basis for waste management (the pricing of electric energy or other methods); (e) enhancing of public acceptance of the site and facility; and (f) selection of procedures and equipment for treatment and volume reduction of radioactive waste.

27. The Netherlands abides by the decision taken at the North Sea Minister's Conference, which recommended that the North Sea was not suitable for developing radioactive waste or for storing such waste in the seabed.

28. The use of radioactive substances in the United Kingdom must be registered and the accumulation of radioactive waste and its disposal authorized. Registration and authorization are entrusted to Her Majesty's Inspectorate of

Pollution (HMIP) in England and Wales; and to Her Majesty's Industrial Pollution Inspectorate (HMIPI) in Scotland and Northern Ireland.

29. Nuclear power stations and other nuclear plants are subject to stringent regulations - by HMIP, HMIPI and the Ministry of Agriculture, Fisheries and Food - covering plant design and construction, and operation and maintenance of facilities, through to decommissioning and disposal of wastes. The safe transport of radioactive wastes is regulated by the Department of Transport. The policy of the Government is to ensure that radioactive waste is managed safely and that the present generation meets its responsibilities to future generations. Policy details are kept under review; to this end, the Government receives advice from an independent committee of experts, the Radioactive Management Advisory Committee.

30. Most of the low-level waste is buried or emplaced in vaults in Cumbria. There have been significant improvements in categorization and handling procedures, with the result that the volume of waste disposed of has shrunk by a factor of four over the last decade. Intermediate-level waste is stored at the sites where it is produced, pending the development of a suitable depository; to this end, geologic investigations are being carried out at a site near Sellafield. High-level waste from the reprocessing of radioactive material is stored at Sellafield and Dounreay. In the former site, waste is being converted to a vitrified form, and will remain in storage for at least 50 years to allow for radioactive decay and heat dissipation.

31. The policy of the United States emphasizes the safe storage of radioactive waste, the development of permanent solutions to radioactive waste disposal and the present generation's accountability for current radioactive waste inventories. The United States radioactive waste policy and programmes are mandated by the United States Congress. Through this and other legislation, the storage and disposal of most commercially generated low-level wastes are assigned to the States, while all other wastes, including low-level wastes of non-commercial origin and Greater than Class C Low-Level Wastes, as well as intermediate- and high-level ones are the responsibility of the federal Government. Most Greater than Class C Wastes come from powerplants' operations and the decommissioning of nuclear reactors. Other sources are sealed industrial and medical generators.

32. The responsibility for radioactive waste management at the Federal government level is assigned to (a) the Department of Energy (storing and disposing of radioactive waste) (b) the Nuclear Regulatory Commission (NRC) (regulating and licensing of certain waste management) and (c) the EPA (setting environmental protection standards).

33. By a 1985 Amendment to the Low-level Radioactive Waste Policy Act, the States became responsible for the disposal of commercial class A, B and C Low-Level Wastes. The Act also encourages the States to form inter-state Low-Level Waste Compacts. Most States and compacts are making progress towards developing their own near-surface disposal facilities and several compacts are expected to have facilities in operation by early 1996.

34. The Uranium Mill Tailings Radiation Control Act of 1978 assigns to the Department of Energy the responsibility for stabilizing and remediating radioactive sites that NRC oversees. The Act also defines NRC's authority to regulate radioactive sites and furthermore requires that any groundwater contaminated by seepage from tailings piles be remediated to EPA standards. The Department of Energy is currently evaluating the feasibility of transuranic waste disposal at the Waste Isolation Pilot Plant (WIPP), whose repository is built deep below the ground in embedded rock-salt.

35. The 1982 Nuclear Policy Act and the 1987 Amendment to the Act designated the Department of Energy as bearing the responsibility for siting and developing geologic repositories for the permanent disposal of spent nuclear fuel. They also authorized the Department of Energy to site and develop Monitored Retrievable Storage facilities for spent fuel storage. The Department of Energy's spent fuel programme has focused primarily on the characterization of a proposed repository site at Yucca Mountain in the State of Nevada, with a view to determining if the site can permanently isolate radioactive materials with geologic and man-made barriers. The Department of Energy also manages the high-level wastes to be disposed of with the spent fuel. Most high-level wastes are in liquid form. Since the plant repository will accept only solid waste for disposal, the liquid waste will have to be vitrified, in other words, converted to glass forms. It is planned that two of the three new wastes vitrification facilities will begin processing in 1996.

36. Mixed wastes are regulated through both radioactive waste legislation and the Resources Conservation and Recovery Act (RCRA), the latter being the basic law guiding the management and treatment of hazardous wastes. The radioactive part of the mixed wastes may consist of low-, intermediate- or high-level waste. The federal Government is responsible for the storage and disposal of mixed wastes and the Department of Energy is engaged in research and development programme focusing on waste management and remediation of sites contaminated by mixed wastes. An <u>in situ</u> vitrification process for mixed waste is being developed.

37. Since 1992, a number of changes have taken place in the legislation on and administration of waste management. Section 801 of the Comprehensive National Energy Policy Act (1992) requires EPA to develop new standards for the protection of the public from releases of radioactive materials at the proposed Yucca Mountain repository for spent fuel and directs NRC to amend its technical requirements and criteria in order for them to be consistent with EPA standards. In section 803 of the Act, the Secretary of Energy is directed to report on the adequacy of current programme plans for managing the radioactive waste that could be generated by nuclear powerplants constructed and licensed after October 1992.

38. The WIPP Land Withdrawal Act withdraws public lands from transuranic waste disposal at WIPP and establishes a new regulatory framework for the facility involving EPA. The Federal Facility Compliance Act contains provisions that affect the management of Department of Energy mixed wastes, including a requirement that within three years, the Department of Energy should prepare treatment plans for all mixed wastes in the Department's possession.

39. There have also been new administrative guidelines; for example, the Department of Energy is to proceed with an evaluation of the Multi-Purpose Canisters (MPC) for spent fuel storage. The Department has also implemented a waste minimization policy aimed at reducing the amount of radioactive waste and pollution generated through the Department's radioactive materials and waste management activities, including avoidance or reduction of the generation of wastes, recycling or reissuing of waste that cannot be eliminated and treatment of the remaining wastes to reduce volume and toxicity.

40. There have also been major developments in storage, transportation, disposal and remediation since 1992. During 1993, several States made substantial progress in developing low-level waste disposal capabilities. Meanwhile, the Department of Energy is investigating metal melting, decontamination and recycling as a strategy for reducing the Department's own need for low-level waste disposal facilities. Several economic and management analysis issues relating to Greater than Class C disposal were expected to be resolved by the Department of Energy in 1993, while in 1994, the Department intended to focus its efforts on higher-level wastes, as well as provide technical assistance to the States and Compact regions.

41. The Department's Uranium Mill Tailings Remedial Action Project has been conducting surface and near surface remedial activities since 1983. In 1993, the Department of Energy began work on eight of the fourteen sites to be remediated. Plans are under way to start work on the remaining six. The Department expects to initiate laboratory testing for transuranic waste package performance; such tests will require several years to complete.

42. The Department of Energy has assessed the adequacy of current spent fuel management planning to accommodate future storage and disposal needs. Meanwhile, the ground-breaking for the Exploratory Study Facility (ESF) at Yucca Mountain began in November 1992. ESF is an underground laboratory that is to house test facilities for the study of Yucca Mountain suitability as a spent fuel and high-level waste repository. In addition, the Department of Energy has begun assessing the feasibility of designing and developing Multi-Purpose Container systems to review, store, transport and eventually dispose of spent fuel. Meanwhile, advanced conceptual wastes package design began in October 1992 in order to evaluate seven alternative design concepts for isolating repository wastes within engineered barriers. The Department of Energy is also evaluating the possible use of actinide burning reactors to minimize radioactive wastes. It has also developed a national inventory of its mixed wastes, as well as of its mixed waste treatment capacity, and it issued an interim report in 1993. Meanwhile, EPA has developed a Volume Reduction and Chemical Extraction (VORCE) technology for treating certain sanding clay soils contaminated by radium and hazardous wastes. The technology has been successfully tested at a remediation site in New Jersey and EPA will administer the technology and also make it available to other United States agencies and to international programmes.

43. NRC has revised its standards for worker radiation exposure (January 1994). It has recently issued revised guidelines for determining classification of low-level wastes and has furthermore continued to take steps to ensure that regulations governing high-level waste disposal are clear and complete. It has

also begun preparing the Licensing Application Review Plan (LARP) which is intended to provide guidelines to NRC staff for reviewing spent fuel and high-level wastes repository licensing applications.

44. Even fewer responses have been received from the developing countries: information has so far been received from Cuba and the Republic of Korea. Within the national plan for environment and development in Cuba, special attention is given to ecologically sound and safe management of radioactive wastes. Low-level wastes from applications of nuclear techniques in medicine and the production of radioisotopes are collected periodically, compared and cemented, and temporarily stored in depositories specifically constructed for this purpose. National bodies comprise (a) the regulating authority, (b) the entities producing the wastes and (c) competent entities for the collecting and treatment of the wastes.

45. The organization for monitoring the management of radioactive wastes was recently consolidated, thus permitting the control of radioactive contamination in the areas surrounding installations, and the environment in general. Capacity-building efforts have been undertaken in recent years towards the development of national nuclear programmes and the protection of the environment. A significant number of specialists and technicians have been trained through different national and international institutions for environmental research and control.

46. The completing and putting into service of plans for the reduction of the wastes that have been temporarily stored have been affected by the difficult circumstances in the national economy. However, negotiations for obtaining the necessary resources through IAEA have been accelerated.

47. Waste to be generated in future electricity-generating plants will be treated, conditioned and stored temporarily within the installations at the plants. Meanwhile, studies will be carried out for the establishment of a permanent storage site.

48. In the Republic of Korea, the Ministry of Science and Technology has the primary executive responsibility for guaranteeing the safe management of radioactive wastes from nuclear powerplants. The Korean Institute of Nuclear Safety (KINS) provides technical support to the Ministry of Science and Technology in waste management areas related to licensing, safety reviews and safety standards. The responsibility for developing national radioactive waste management projects is entrusted to the Korean Atomic Energy Research Institute, whose work also includes the transportation and disposal of low-level waste from nuclear powerplants, as well as radioactive isotopic wastes from industries, hospitals and research institutes.

49. Based on radioactivity laws and atomic energy laws, a long-term strategy for radioactive waste management was adopted by the Korean Atomic Energy Commission in 1988. Efforts currently under way, are aimed at selecting underground radioactive waste disposal sites: construction of low- and high-level sites are scheduled for 1995 and 1997 respectively. Meanwhile, the current producers will bear the responsibility for the storage and monitoring of these wastes.

50. The Republic of Korea has, since 1991, discontinued sea dumping of radioactive wastes, and does not consider it an option. The country plans to construct a specially designed ship for transporting radioactive wastes. Concurrently, a strategy for the nuclear fuel cycle and the decommissioning of the nuclear plant at Paks will be elaborated upon, taking into account preparations for licensing and building an intermediate spent fuel storage facility at the Paks site as well as an investigation into the possible use of siltstone formations for disposal purposes.

51. Safe, acceptable management and final disposal of radioactive waste including spent fuel and waste from future decommissioning require coordination of a multiplicity of activities - scientific, technical, economic, social, legal and political efforts.

3. Technology and finance

(a) Technology

52. As part of ongoing research development programmes, as well as legislative requirements, many countries have been actively engaged in efforts aimed at promoting evolution of methods for the safe and environmentally sound treatment, processing and disposal of radioactive waste and in the assessment of programmes concerned with evaluating the health and environmental impact of radioactive waste disposal.

53. Examples have been given that underscore the fact that the United States is active in new research and development initiatives. Other initiatives include research and development in mixed-waste treatment technologies; the development as well as the refining of environmental standards and criteria applicable to radioactive waste management programmes and activities; and the development of generally applicable environmental radiation standards for the land disposal of low-level wastes.

54. Many countries are cooperating with such organizations as IAEA, IMO, the World Health Organization and the International Commission on Radiological Protection in these efforts. Members of OECD also cooperate and coordinate their efforts with the Nuclear Energy Agency. As part of IAEA's programmes, the organization promotes research and development methods for the safe and environmentally sound disposal of radioactive waste, as well as research assessments of health and environmental impacts. The Agency plans to hold a seminar on radioactive waste practices and issues in developing countries in Beijing, China, in October 1994.

(b) Finance

55. In Agenda 21, it was estimated that the average total annual cost (1993-2000) to international organizations to implement the activities of the programme of its chapter 22 was of the order of $8 million. Actual costs and financial terms, including any that are non-concessional, will depend upon many factors including the specific strategies and programmes Governments decide upon for implementation.

56. IAEA's 1994 programme budget for radioactive waste management is about $5.5 million. In addition, $1.3 million is earmarked for technical cooperation activities which include United Nations Development Programme (UNDP)-financed projects. Another $900,000 comes from extrabudgetary sources, including other United Nations organizations. Additional high-priority funding amounting to $400,000 has been identified but it cannot be carried out through the regular budget. In addition, multi-year programmes for several countries that need improved capacity for radioactive waste management have been developed in detail. These amount to $6 million, out of which some $1.7 million has been sought from UNDP's Capacity 21 programmes.

57. The costs at the national level of managing and disposing of radioactive wastes are considerable and will vary, depending on the quantity and level of waste, and the geologic characteristics of sites technology used for disposal.

4. Capacity-building, including human resource development

58. Countries, in cooperation with relevant international organizations, are called upon, in chapter 22 of Agenda 21, to provide, as appropriate, assistance to developing countries to establish and/or strengthen radioactive waste management infrastructures, including legislation, organizations, trained manpower and facilities for the handling, processing, storage and disposal of wastes generated from nuclear applications.

59. A priority activity within the IAEA waste management programme involves helping developing countries establish national radioactive waste management capacity. To this end, assistance is being provided at the national, regional and interregional levels to member States to establish infrastructure needed for the safe management of radioactive waste, including spent fuels, and to strengthen existing infrastructures.

60. A proposal has been submitted to the UNDP Capacity 21 initiative. At the same time, training needs have been identified in such areas as spent radiation sources management, integrated waste management systems, infrastructure requirements, management of waste from nuclear applications and quality assurance requirements for waste management. IAEA is assisting in arranging for training in these areas on a regional and interregional basis.

61. Canada provides assistance to developing countries through bilateral cooperation and participation in IAEA programmes. To this end, it hosted a training project that included the participation of 25 developing countries. The United States also provides assistance to many developing countries through similar channels.

III. CONCLUSIONS AND PROPOSALS FOR ACTION

A. Conclusions

62. Many countries have been actively involved in the monitoring and safe management of radioactive wastes. Legislation has been enacted or amended, as

appropriate, and safety standards updated. At the same time, active efforts have been geared towards identifying and establishing permanent disposal sites for radioactive wastes. Meanwhile, Governments are continuing their efforts to manage temporary disposal facilities and to find practical measures for minimizing or limiting the generation of those wastes.

63. Particular interest has been shown in developing and implementing codes of practice for transboundary movements of radioactive wastes and in expediting the work of the London Convention, which is geared to replacing the current voluntary moratorium on the disposal of low-level radioactive wastes at sea by a ban. There has also been international cooperation among countries and with international organizations, in particular, IAEA and the Nuclear Energy Agency of OECD.

64. However, problems still remain. The generation of low-level radiation from nuclear applications in medicine, agriculture and many other activities has been increasing steadily. This calls for more concerted efforts towards developing safe storage and disposal of such wastes. For many countries, the disposal of intermediate-level wastes is fraught with many problems. More and more of such wastes are being produced and more storage capacity is required. At the same time, the cost for the management, storage and disposal of such waste is rising very fast; and nobody has any ideas about the nature of future costs.

65. More difficult problems seem to relate to the permanent storage of high-level wastes. Most of the wastes have half-lives countable in million of years. In most cases, the sites that seemed to be satisfactory have turned out to be less so than was hitherto thought. There are also ethical issues connected with passing on the responsibility for the management and disposal of such long-lived wastes to future generations. In this context, it should be pointed out that the precautionary principle has been ignored, especially with regard to nuclear powerplants. Those plants produce radioactive wastes that have been known to be harmful to both health and the environment for centuries. However, no viable, safe and permanent disposal sites have been found and temporary storage sites are being stretched to the limit. At the same time, both conventional and new sources of energy are widely available for meeting electricity requirements. Yet more nuclear powerplants continue to be built.

B. Proposals for action

1. Legislation

66. While, as noted, substantial progress has been made in the monitoring, collection, transportation and storage of radioactive wastes, and whereas a lot of effort has gone into international and regional cooperation in the development of codes of practice and of standards for exposure, a lot more remains to be done. In many countries, legislation has been enacted to address the complex and multifaceted problem of radioactive waste management and disposal; there is nevertheless a need to keep such legislation under review and to amend it, as appropriate, in order to reflect the changing situation. Associated with this is the need to constitute independent panels to review standards, licensing and control procedures. Public participation in such

general discussions and assessment should be encouraged. This is of particular importance because public awareness and acceptance of the management, licensing and, in particular, disposal procedures (regarding sites selection) are crucial.

2. Institutions

67. In many developing countries, one of the limiting factors with respect to action stems from the fact that the institutions for waste management and control are inadequate and the infrastructures weak. At the same time, the quantity of radioactive waste and the number of isotope applications are increasing. The accumulations of spent radioactive sources will therefore require immediate attention. Help from international organizations and international communities will be required in order to develop or improve procedures for the management and safe disposal of these radioactive wastes.

3. Scientific and technical efforts

68. There is need for more research and development into the most suitable facilities and into the reduction of the volume of certain radioactive wastes, utilizing, in the latter case, such procedures as vitrification. Work is also required on geologic studies of potential sites. Further research and development effort is also required in order to establish safety and health standards. While some work is being done on remediation procedures and processes, this is one of the areas that also require particular attention.

4. Financial assistance

69. The management of radioactive wastes is capital-intensive and there is a need to allocate adequate funds for this purpose. Many developing countries will require financial assistance in order to address adequately this very important subject.

5. International cooperation

70. While encouraging efforts have gone into international efforts in regard to radioactive waste management, there is a need to further develop international standards for radioactive waste management that could be adopted by States and would ensure that internationally accepted approaches to the managing and disposing of radioactive wastes in a safe and environmentally sound manner were being followed.

Notes

1/ Official Records of the Economic and Social Council, 1993, Supplement No. 5A (E/1993/25/Add.1).

2/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1. annex II.

3/ Official Records of the Economic and Social Council, 1993, Supplement No. 5A (E/1993/25/Add.1), chap. I. para. 28.

4/ Ibid., para. 24.

5/ "Finishing the job", World Watch, March/April 1994.

6/ "Nuclear waste, with nowhere to go", New York Times, 28 March 1994.

7/ "For the desperate nuclear waste isn't dreadful", New York Times, 24 February 1994.

8/ "French to make cleaner job of nuclear waste", Financial Times, 15 May 1991.

9/ "Power politics", The Economist, 9-15 April 1994.

10/ John Surrey, "Ethics of nuclear decommissioning", Energy Policy, vol. 20, No. 7. (July 1992) pp. 632-640.

11/ "Closing costs - nuclear utilities face immense expenses in dismantling plants", The Wall Street Journal, 15 January 1992.

12/ Most of the material used in this section is based on the submission of IAEA, which is the designated task manager for chapter 22 of Agenda 21.

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Second session
16-27 May 1994
Item 3 of the provisional agenda*

GENERAL DISCUSSION ON PROGRESS IN THE IMPLEMENTATION OF AGENDA 21, FOCUSING ON THE CROSS-SECTORAL COMPONENTS OF AGENDA 21 AND THE CRITICAL ELEMENTS OF SUSTAINABILITY

Letter dated 2 May 1994 from the Permanent Representative of Austria to the United Nations addressed to the Secretary-General

It gives me great pleasure to transmit to you a copy of the report on the International Symposium "Sustainable Development and International Law", which was held in Austria from 14 to 16 April 1994 at the invitation of the Austrian Ministry for Foreign Affairs (see annex).

The Symposium constituted one of Austria's contributions to the preparatory process for the second session of the Commission on Sustainable Development and its conclusions should provide an input to the ongoing development of Agenda 21.

May I ask for your kind assistance in circulating this report as a document of the second session of the Commission on Sustainable Development, under agenda item 3.

(Signed) Ernst SUCHARIPA
Ambassador
Permanent Representative of Austria
to the United Nations

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* E/CN.17/1994/1.

Annex

INTERNATIONAL SYMPOSIUM

"Sustainable Development and International Law"

Baden bei Wien, 14 - 16 April 1994

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INTERNATIONAL SYMPOSIUM
"Sustainable Development and International Law"
Baden bei Wien, 14 - 16 April 1994

Report

General Observations:

1. From 14 to 16 April 1994 an international symposium on "Sustainable Development and International Law" was held in Baden bei Wien at the invitation of the Austrian Ministry for Foreign Affairs.

The work load was allocated to panels which were chaired by Mr. Hugo HAIDER, Deputy Director General in the Federal Ministry for Environment, Youth and Family; Ambassador Franz CEDE, Legal Counsel in the Federal Ministry for Foreign Affairs; Professor Gerhard HAFNER, University of Vienna; Professor Christoph SCHREUER, University of Salzburg; and Mr. Thomas Michael BAIER, Federal Ministry for Foreign Affairs. The General Rapporteur was Ambassador Professor Winfried LANG, Permanent Representative of Austria in Geneva.

Attached to this report is the agenda of the symposium as well as a list of participants.

2. The Symposium constituted the contribution of Austria to the preparatory process for the second session of the UN Commission on Sustainable Development (CSD). Papers presented by speakers and contributions of discussants will be published by Graham & Trotman.

3. The following items were discussed at the Symposium:
- Sustainable Development - Objectives and Consequences,
- Priorities for the Development of International Law,
- Implementation of and Compliance with International Environmental Commitments,
- Participation of All Stakeholders in the Development and Implementation of International Law for Sustainable Development,
- Environmental Policies - Their Compatibility with International Trade and Other Agreements.

Opening Statements:

4. In introducing the main subjects of the Symposium, the General Rapporteur, Ambassador LANG, reminded participants that the objective and purpose of this meeting was not to agree on some negotiated text but to generate fresh and new insights as well as action-oriented proposals which could be injected into the deliberations of the Commission on Sustainable Development.

5. The Federal Minister for Environment, Youth and Family Ms. RAUCH-KALLAT welcomed participants and reiterated Austria's strong interest in the elaboration and implementation of international environmental law. She recalled Austria's commitment to making sustainable development a worldwide as well as regional and national reality. She also addressed the recent conclusion of the restructuring process of The Global Environmental Facility (GEF). Referring to Austria's historical and geopolitical position she mentioned numerous regional developments in the context of the ECE, the Alpine Convention, and the Conference of European Environment Ministers (Lucerne 1993). After highlighting the importance of the trade and environment issue, she drew attention to the Austrian proposal to establish a permanent legal body, dealing with existing and future environmental instruments. She expressed concern for the issue of prompt and efficient implementation; new ways have to be found to secure compliance at national and international levels (mechanisms for dispute avoidance, etc.).

6. A message from Federal Minister for Foreign Affairs MOCK was read by Ambassador WOLTE, Deputy Secretary General for Foreign Affairs. He said that since the Stockholm Conference of 1972 it has become clear that protection of the environment can only be enhanced in connection with progress in social and economic development. Austria organized this Symposium with the confidence that the Commission on Sustainable Development would serve as a major forum to identify, evaluate, and enhance the future role of international law of sustainable development. Austria has particularly been concerned about the increase of international conflicts due to environmental degradation and their implied dangers (see the Austrian "Green Helmets", an initiative on environmental disputes). A permanent body established within the UN system to deal with the development of environmental law should continue to encourage discussions on a mechanism for environmental dispute avoidance and could act as a liasion between international environmental instruments, especially in respect of common institutional and procedural questions.

7. UNEP Executive Director DOWDESWELL underlined in her keynote statement that the changing world situation allows for wider international cooperation and opens new approaches for international environmental law; however, international environmental law must move in the direction of sustainable development. She stressed that the latest international instruments constitute signs of such a movement. She then focused on certain characteristics of international environmental law (context of uncertainty, common but differentiated responsibilities, problems of implementation) and identified challenges to be met by the Symposium. First, it should identify the advantages and disadvantages of nonlegally binding instruments ("soft-law"); second, causes of noncompliance and means to remedy them should be looked into and third, possible synergies between treaties in similar fields, and in different geographic settings, should be explored.

Panel: Sustainable Development-Objectives and Consequences

8. On behalf of the CSD its vice-chair, Mr. JOMAA, expressed the hope that the symposium would produce concrete recommendations and action-oriented proposals. Ms. WILLIAMS-SILVEIRA, speaking for USG Desai highlighted the revolutionary nature of the Rio-documents and some of the principles contained in them. She recalled problems of implementing international law at the domestic level, in particular the issue of institutional capacities, and suggested the development of indicators to check complex compliance problems. According to her view CSD would act as a sounding board and a catalyst for the development of international law.

9. During the discussion most interventions reflected the concern for more attention to be paid to "soft-law" as an evolutionary tool of lawmaking; in this context the importance of the "framework convention/protocol approach" was also stressed. The role of nongovernmental international bodies in the field of standard-setting was also mentioned, as was the importance of customary law. Problems of noncompliance were traced back to insufficiencies in the lawmaking process, such as the lack of a legitimate forum.

Panel: Priorities for the Development of International Law.

10. Professor BROWN-WEISS introduced the concept of "global environmental justice," which reflects a move from the "old model" of international relations in the environmental field toward a "new model". The old model was characterized by a concentration on state actors, unfair resource allocation, a "first come first serve" practice, as well as liability and responsibility. A close relationship between natural resources allocation and pollution control also existed. Ms. Brown-Weiss stated that the new model should be based on the application of equity, especially intergenerational equity, and the use of a new ethic. Environmental issues should not be solved on the back of the poor communities, neither at the national level nor at the international level. She reported that this new model implies the integration of new, even nonstate, actors in the decision-making process. As a consequence the negotiation and implementation of international environmental agreements would be made more efficient. She also raised the question of the most appropriate approach. Environmental lawmaking could be centralized in one institution, comparable to the structure of the World Intellectual Property Organization (WIPO); this would lead to a "Code of the Environment". The other possible way would be to maintain the present decentralized approach, while improving the coordination.

11. Professor GINTHER clearly underlined the relationship between the introduction of this new model, building upon equity and ethical considerations, and the use of participatory democracy and the great importance of good governance. The evolution of the concept of equity as seen in both the civil and common law systems should also be reviewed.

12. In the discussion many speakers raised questions on the effective application of the concept of equity. While there was agreement on the necessity for improving the efficiency of international lawmaking, there was no agreement on whether the WIPO model of bringing together several treaties under one roof would be an improvement.

13. Professor HANDL, addressing the issue of General Rules vs. Specific Obligations, expressed the view that sustainable development is not a fixed but an evolving concept. The concepts, rules, and principles adopted and agreed upon in the UNCED process represent a certain balance between environmental and development concerns. It might be useful to reconsider this balance during a "midterm review" in the light of changing circumstances. He stressed that the definition of sustainable development could invite an overly anthropocentric and instrumentalist interpretation, which could undermine the very pursuit of sustainability in the long run. Analyzing the role of international financial institutions he drew attention to the utility of indicators for sustainable development. Furthermore, he recognized a close connection between the topic of sustainable development and national resource accounting.

14. The discussants viewed the above issues mainly in the light of their experiences from specific instruments that they had been involved in. Mr. ZAMMIT-CUTAJAR underlined that the crafting of an efficient instrument involves a careful balance between generality and specificity. In that endeavor one must take into account not only environmental signals, but also social and economic indicators. Mr. DIALLO argued that desertification or rather soil degradation is a classical issue of sustainable development as its ramifications cover a multitude of different sectoral issues. For example, the negotiation of the Convention on Desertification was a translation of the text of Agenda 21 into legal obligations. It was structurally interesting, because many of its specific obligations were to be included in regional implementation instruments.

15. In the ensuing discussion many speakers raised the question of" treaty congestion" and reiterated the necessity to improve coordination between different instruments and sectoral agreements.

16. Mr. SANDS examined the relationship between sustainable development and the legal value of principles of international law. Sustainable development, although considered an evolving principle, has already been included in a number of international agreements such as the EEA, NAFTA, and WTO. Principles mentioned in the context of sustainable development originate in various areas of international law, such as human rights, economic law, and environmental law. After investigating the negotiating history of the conventions on Climate Change and Biodiversity he examined the direct applicability of principles to the operation of international agreements.

17. Dr. MANN in discussing the above paper argued that sustainable development is an infinite concept. He questioned whether such principles are directly applicable and contribute to the operation of the respective treaty. He preferred the development of concrete rules to the introduction of an element of uncertainty into the implementation of international environmental law. Such uncertainty could be traced back to the use of principles.

18. In the discussion many questions were raised about the practical consequences of the direct application of principles. In the case of such application concrete problems might arise for the further evolution of international law.

Panel: Implementation of and Compliance with International Trade and other Agreements

19. Dr. MITCHELL, presenting a paper he had prepared together with Professor Antonia CHAYES, said that research on international regulatory treaties in security, economic, social, and environmental affairs provide an empirical foundation for a framework based on five propositions:

- New sovereignty (which is no longer simply the freedom to act autonomously).
- Ineffectiveness of sanctions (as they are costly, difficult to maintain, and slow to take effect).
- Sources of compliance and noncompliance (most states enter into treaties to comply; noncompliance can be due to inadvertence and lack of resources and - although rare - intention).
- Transparency (which permits independent decisions among coordinated partners, reassuring them mutually on their similar actions and deterring those who contemplate noncompliance).
- Active treaty management (review and assessment, dispute settlement, capacity-building).

According to the speaker, experience shows a tendency away from "treaties with teeth" to a better management of compliance; this requires focusing on and improving of interactions and discussions that persuade actors to comply to rather than to resent "dramatic episodes of sanctions" as a response to clear violations.

20. Mr. KOSKENNIEMI, discussing the previous paper, stressed the difference between a realistic and a formalistic approach to dealing with the effectiveness of treaties. He preferred the latter. According to him three strategies could explain the effectiveness of treaties:

- International laws are backed by sanctioning mechanisms; practice, however, shows that sanctions are ineffective (of the 108 sanctions between the First World War and 1948 only 39 or about 36% had some success).

- Law does follow what the most powerful interests require: states enforce environmental law to the extent that it meets their interests; in practice, the emergence of environmental regulations often seems a matter of reaction to past catastrophes.
- "Soft responsibility", reliance on transparency and on reporting mechanisms; effectiveness has been connected with the textual indeterminacy of international agreements and the effects of environmental regulations.

21. Mr. Patrick SZELL pointed out that most agreements since 1972 have failed to come to grips with compliance supervision. Noncompliance regimes must avoid complexity, must be nonconfrontational and transparent. Experience of designing and operating noncompliance regimes under environmental treaties has remained limited. Decisions have often been left to the conferences of the parties. Many countries continue to be nervous about possible infringements of sovereignty (as demonstrated by the Montreal and sulfur regimes). The speaker underlined the inevitable correlation between the strictness of a treaty's compliance and enforcement regimes and the stringency of its substantive obligations. Compared with noncompliance procedures, dispute settlement mechanisms have rarely been used, but should serve as deterrents. Noncompliance regimes should generally be tailored to suit individual cases. In referring to the Montreal Protocol's implementation committee, the speaker stressed that it has already had a useful impact, but has still to embark on the difficult task of determining which individual parties have not met their substantive obligations under the convention. Every environmental instrument that incorporates a noncompliance regime would have to go through a lengthy period of confidence building.

22. Dr. MITCHELL in discussing Mr. Szell's contribution pointed out that an effective noncompliance regime must strive to make compliance more attractive and to minimize the resources needed for effective monitoring. It should also create a system of self-reporting and independent verification. To ensure that most cases of noncompliance are responded to, Dr. Mitchell stressed that it would help, if parties come into compliance where appropriate; where necessary more confrontational approaches should be encouraged. Compliance could be reached through three strategies:
- The standard model of legal enforcement, based on deterrence.
- The incentive-based system that increases the benefits of compliance.
- The coerced-compliance system that reduces the opportunities for noncompliance.

23. In the discussion many questions were raised as to treaty management and dispute avoidance. The view was expressed that dispute avoidance requires sufficient funding. The functioning of implementation committees as provided for in the Montreal Protocol

and the Second Sulfur Emmissions Protocol could be improved by giving these committees a more independent position. Several participants highlighted the differences between implementation, compliance, and effectiveness as well as between reporting and compliance procedures; transparency was found to be the key element in dealing with noncompliance. It was stated that compliance represents a dynamic component and has to be regarded as a long term process. Attention was also drawn to the concept of the differentiated responsibilities of industrialized and nonindustrialized countries. The view was expressed that compliance with international treaties also depends on an appropriate management at the level of domestic enforcement (in respect of legal tools, precedents in the field of human rights could be used).

24. Mr. ADEDE began with a reference to the "Green Helmets" concept proposed by Austria at the 6th Committee of the General Assembly in 1989 as an example of a dispute avoidance mechanism. Dispute avoidance was first fully examined at a meeting of experts convened at Bellagio, Italy, in 1974. At that meeting Australia had proposed in the course of UNCLOS III negotiations that parties, already at the stage of consultations, should be obliged to exchange statements of their position in writing; in the conciliation and judicial settlement procedures parties should be required to go through a phase of negotiations after the close of the written pleads. The Preparatory Committee of UNCED discussed (on the basis of a proposal presented by Austria and other states) the question of dispute prevention. This was also discussed at the UNEP meeting of Senior Legal Advisers at Nairobi in September 1992. According to the speaker a dispute avoidance mechanism should comprise the following elements: prior consultation, reporting procedure, fact finding, and the setting up of a commission of inquiry.

25. Mr. LOIBL in discussing the previous contribution pointed out that procedures for dispute settlement were to be found in nearly all environmental treaties which have been concluded in recent years. State practice has shown that disputes between states were mostly dealt with through negotiations and consultations between the parties involved, and that states have been very reluctant to initiate arbitration or ICJ proceedings. He considered the existence of dispute settlement mechanisms a tool preventing disputes, and thereby increasing the compliance and effectiveness of an international agreement. Any mechanism or instrument which avoids a dispute from arising was to be seen as dispute preventive. Comprehensive systems of dispute preventions have so far not been included in international environmental treaties, although a number of proposals have been made to that effect. The principle of dispute prevention has been referred to in some international instruments, such as the ECE convention on Environmental Impact Assessment in the Transboundary Context 1991 and the Nordic Convention 1974. The discussant also referred to

the Austrian "Green Helmets" proposal as a measure in the field of dispute prevention. Dispute prevention - like dispute settlement - dealing with the different environmental resources requires different mechanisms; a comprehensive list of possible mechanisms could be a valid basis for further development.

26. The discussion covered the relationship between international environmental law and international law on sustainable development. The view was widely shared that existing and emerging international law should be tested against the requirements of sustainable development. Furthermore the respective mandates of UNEP and CSD concerning international law were discussed as well as aspects of coordination and cooperation among international institutions.

27. Ms. PONCE-NAVA explained in her contribution that capacity-building implies the development of internal skill and expertise involving governments and their partners, such as NGOs, industry, and academic institutions. Environmental law, both international and national, constitutes just one of these components. By itself, the best legal regime could not do much to advance the pursuit of sustainable development goals. In conjunction with the requisite human and other resource capabilities for the development and application of appropriate policies, strategies, and activities, laws and regulations suited to country-specific conditions could be, according to Agenda 21, "among the most imporatant instruments for transforming environment and development policies into action." The speaker underlined the essential importance of the participation of all countries, including the developing countries, in treaty making on sustainable development. Special mechanisms would have to be created or continued to support national efforts to participate in the process of negotiation, revision, and implementation of international conventions.

28. Mr. BOYLE discussing the previous contribution underlined the importance of capacity-building for sustainable development, including appropriate funding and assistance in the field of technology. The discussant drew attention to a number of critical questions, particularly how well technology transfer and technical assistance provisions would work in practice and how far intergovernmental organizations could supply the necessary capacity or assist in its creation.

29. In the discussion many participants highlighted the importance of adequate approaches to capacity-building at the national level to prevent noncompliance. It was mentioned in several interventions that capacity-building should be based on adequate funding. Dispute prevention procedures should avoid the possibility of potential conflicts becoming political issues between governments. They should also facilitate the management of critical environmental situations.

Panel: Participation of all Stakeholders in the Development and Implemention of International Law of Sustainable Development.

30. Dr. TIMOSHENKO recalled that even before UNCED there was a long term process of integrating environment and development. As a follow-up to the Stockholm Conference of 1972, UNEP was established and has continously been engaged in this integration process. In the 1980s the notion of sustainable development emerged. UNCED gave a new mandate and political legitimacy to this concept and its inclusion in decision-making structures. Dr. Timoshenko said that there is a clear mandate for international lawmaking under this new umbrella. Among the institutional consequences of UNCED have been the creation of CSD and of the High Level Advisory Board as well as mandate for UNEP to strengthen cooperation and to develop further international environmental law. The coordination function of UNEP has implied practical measures such as the colocation of convention secretariats.

31. Professor BEKHECHI drew attention to the fact that environmental pollution calls for a new institutional order for regions, continents, and the world. Developing countries need not only financial help but also the knowlege and the experience of the developed countries; thus a new duty of cooperation under international law has emerged.

32. In his presentation on international financial institutions Dr. SAND drew attention to the rediscovery of trusts as institutional tools for sustainable development. His analysis of international mechanisms that have evolved as financial instruments of sustainable development at the global level included the following: the World Wide Fund for Nature (WWF), the World Heritage Fund of UNESCO, the series of "convention trust funds" established by UNEP, and the most recent set of funds developed mainly under World Bank auspices, the Global Environment Facility (GEF), the Ozone Projects Trust Fund, and the Rain Forest Trust Fund. Drawing on analogies from the concept of the charitable trust and its equivalents in national legal systems the speaker emphasized that the establishment of trust funds in the context of existing organizations avoids the need to create separate legal entities and bureaucracies.

33. Dicussing the role of financial institutions Mr. de BERDT ROMILLY highlighted the role of funds in the implementing agreements and innovative solutions such as debt for nature swaps. He considered GEF the main financial mechanism for sustainable development. In this context he suggested that an integrated and transparent approach should be followed.

34. In the ensuing discussion the fund approach received positive consideration. Mention was also made of funds used at the national and regional levels for compensating environmental damage.

35. In her paper on the role of corporate business Professor CHOUCRI stated that corporate business - although not an official actor under international law - is involved because of its power and its roles as a source of pollution and as an agent of technological change. The demands of sustainable development have also been experienced in the business community and have led to its increased responsiveness. Strategies followed by corporate business range from "business as usual" practices through "reactive" strategies such as environmental officers to "eco-active" strategies anticipating developments. Corporate business could contribute to sustainable development through the implementation of the concept of "best practice" through facilitating technological leapfrogging and through built-in training. Investments should be made in the context of the so-called technology triangle (collaboration of academic institutes, government, and business and industry).

36. Dr. YAMAMOTO in discussing the previous paper stressed the need to provide environmentally sound infrastructures for the growing population and gave examples of projects financed by the Global Infrastructure Fund (GIF).

37. In the discussion the important role of eco-auditing was highlighted as well as the efforts of the International Chamber of Commerce to operationalize the principle of "best practice". Reference was also made to the Business Council for Sustainable Development and its action related to the joint implementation of Agenda 21. Concerns were expressed on "leapfrogging backwards" by relocating industries to countries with less stringent environmental standards.

38. Dr. BURHENNE recalled the long history and the wide spectrum of NGOs. As a result of UNCED NGOs have been on their way to achieve a higher profile as sources of expertise and support. He stressed the need to agree on concrete rules and guidelines for the action of NGOs (ECE Task Force). Governments should be expected to grant NGOs the right to know (access to information) and the right to be heard (participation in decision making processes). NGOs would have to accept certain rules to ensure that a decision making process is fair, equitable, and transparent. Most of these basic rules were reflected in a Draft Convenant on Environment and Development elaborated by IUCN.

39. As discussant Mr. LYNCH indicated the various roles to be played by NGOs. He said that these ideas are means to the end of sustainable development especially in fostering a community-based management of natural resources. He further stated that NGOs are also supposed to provide data on the environment. He regretted that regional and local concerns have not sufficiently been taken into account by international law.

40. The issue of NGOs led to a controversial debate on their nature, their qualification, and their legitimacy as well as their role in international lawmaking. Some participants questioned the discipline of NGOs and raised doubts on their helpfulness in certain situations. Other participants referred to NGOs as providers of information, challengers of positions, supporters as well as advisers. In addition their role in the implementation of international law was mentioned.

Panel: Environmental Policies - Their Compatibility with International Trade and Other Agreements

41. Mr. REINSTEIN reviewed the different legal framework conditions as well as political cultures of the environmental and trade communities in pursuing their interests. Thereby he stressed the need of each side to go beyond its immediate concerns. Referring to the choice between unilateral measures and multilateral environmental agreements (MEAs), he pointed out that environmental protection could be achieved quite successfully through the negotiation of MEAs. The price of imposing unilateral measures may be very high not only in economic terms, but also in undermining the spirit of cooperation and the integrity of the international system.

42. Ms. CAMPBELL, discussing the previous contribution, stressed the growing economic interdependence of countries which had to be taken into account when designing MEAs. Within the Montreal Protocol special emphasis has been given to "market forces", and in particular those with trade-related effects.

43. Ms. STEVENS pointed out that the OECD Environmental Policy Committee gave priority to the issue of trade and environment. She indicated three areas where trade restrictions based on processes and production methods (PPMs) were used for environmental protection: domestic, foreign, and shared environments. As regards the domestic environment the restriction of imports by setting of product standards would conform to the GATT/TBT and the SPS Code. In general, PPM-based trade restrictions have not been allowed to protect the foreign environment without spillover effects. However, developing a code of minimum environmental standards at the international level would be a formidable task. PPM-based trade measures should be carefully considered when used to correct market failures in respect of shared environments. The debate should focus on exceptions to the general prohibition of trade restrictions based on PPMs. The following principles should apply while using PPM-based trade measures:

- Their use should be linked to MEAs.
- They should only be considered a last resort.
- PPM-based trade restrictions placed on developing countries should be accompanied by some type of compensation.

44. Mr. SCHOENBAUM, referring to the way GATT/WTO should deal with the issue of PPMs, stressed that the WTO Committee on Trade and Environment could serve as a forum for discussion. It should also encourage bilateral agreements between member states when a particular PPM of the "exporting state" becomes an issue relating to competitiveness and environmental protection. Within WTO MEAs should be admitted as an exception to justify PPMs and trade sanctions. Trade sanctions should not be used in an environmental agreement unless they are regarded necessary to achieve its purpose and meet a "least restrictive" test. WTO should also devote special attention to PPM based taxes which have increasingly been perceived as an issue of importance.

45. In the discussion there was agreement that international environmental instruments should evolve toward making trade and environment mutually supportive and reinforcing. In this context reference was made to the NAFTA Side Agreement on Environment. Contradictory views on the environmental benefits of NAFTA were expressed. It was mentioned that trade measures could be a very useful, but not the sole component for the implementation of MEAs. Some participants shared the view that a distinction has to be made between product standards, which are already covered by GATT, and PPMs, which need considerable further elaboration. The role of NGOs in imposing "unilateral measures" was also raised. The view was expressed that a stronger involvement of NGOs in the decision-making process would result in less pressure of NGOs on governments.

46. Mr. SCHERER illustrated the legal framework EU member states have to take into account when designing national regulations on environmental protection restricting free trade. He stated that according to specific restrictions of EU regulations, different provisions apply depending on the prerequisites that have to be met. Within the EU, trade measures for environmental purposes depend on the necessity of the environmental aim as well as the principles of nondiscrimination and proportionality. EU's supranational mechanisms respresent a fairly coherent regional approach to "trade and environment". These mechanism may serve as a model for international dispute settlement, particularly as regards their combination of overall regulatory principles, detailed substantive rules on specific environmental problems, conflict resolution, and adjudication procedures.

47. Ms. SCHUSTER-MEYER underlined the role of the European Court of Justice in integrating environmental concerns into the European Union. She regarded free trade (trade liberalization) and environmental concerns (internalization of environmental costs) as being of equally crucial importance to resolve the tension between free trade and environmental issues. To be successful in this regard countries would have to give up some elements of sovereignty.

48. In the discussion the subject of sovereignty was again taken up. The view was expressed that time has come for an overall examination of this topic. It should be taken into account that NAFTA and EU states have voluntarily given up some of their sovereign rights.

Conclusions Drawn by the General Rapporteur

49. The view prevailed that international environmental law could and should contribute to the process and objective of sustainable development.

For this purpose international environmental law should also give clear guidance to the making and application of domestic law which within the respective countries translate international commitments into local action.

This environmental legislation should also integrate economic and social aspects.

50. A widely shared opinion was that nonlegally binding agreements ("soft-law") should be considered an important, at least interim, step in the international process of rule-making; the view was expressed that the early adoption of legally binding instruments is not always an optimal solution, especially if such instruments are unlikely to be ratified and adequately applied in all relevant countries.

> The CSD might consider recommending that states and international organizations make more frequent use of nonlegally binding agreements.

51. The concept of "equity" was thoroughly discussed as an instrument to attain "global environmental justice". Questions were raised about this concepts actual and effective application.

There was a broadly shared view that international lawmaking could and should be improved; the quality of each rule has a major impact on compliance with commitments contained in that rule.

Skepticism prevailed on the possibility and utility of bringing convention secretariats together under a formal umbrella-institution covering problems common to the various instruments and the respective secretariats.

52. Many participants agreed with the view that sustainable development is an evolving concept, the contents of which should be reviewed from time to time.

In this context the utility of specific economic, social, and ecological indicators was highlighted; these indicators could help to check the actual application of this concept.

Participants were aware of the interrelationship between the general rules of international law and the specific provisions contained in the respective treaties; a certain amount of interdependence and cross-fertilization could be discovered.

53. No clear consensus emerged as to the utility of legal principles for the advancement of sustainable development, especially in view of uncertainties related to the content and status of these principles.

Some participants held the view that such principles could, through the process of refinement, facilitate the general evolution of international law. Others expressed concern that referring to principles in treaties could create the illusion that such principles had a legally binding effect.

54. There was the broadly shared view that international environmental treaties, in order to ensure their full contribution to sustainable development, should contain machinery and procedures related to implementation and compliance control. Existing reporting and monitoring procedures should be streamlined and harmonized.

Another equally, broadly shared view indicated that compliance control, based on incentives rather than on sanctions, would ensure the full application of the respective agreement.

> The CSD might consider recommending that all international treaty regimes related to sustainable development, which include most environmental treaties, contain compliance-control machinery. If they do not, they should be amended accordingly. The Montreal Protocol and the Protocol on Sulfur emissions could serve as models.

55. Participants were aware that compliance with international commitments iss mainly dependent on the respective national capacities.

The broad view emerged that capacity-building was also an important precondition for sustainable development. Such capacity-building should primarily relate to economic, social, and ecological problems; but it should also improve know-how in the fields of lawmaking, the implementation of domestic laws, and international agreements.

In this context special attention would have to be paid to the needs of developing countries.

> The CSD might consider encouraging states and relevant organizations to become more actively involved in capacity-building, especially by means of the appropriate transfers from North to South; in this context the close linkage between compliance and capacities should be highlighted.

Participants also considered it legitimate that countries lacking appropriate capacities may benefit from exceptions or special regimes provided for them in some treaties.

> The CSD might consider it appropriate to call on countries eligible for such exceptions or special regimes to draw on these possibilities only after having exhausted all other means available to them.

56. A broadly shared view indicated that disputes between states on environmental matters should be avoided before they arise; this would correspond to the objective of preventive action common to all environmental endeavors. Some national initiatives related to new mechanisms for dispute avoidance were referred to.

> The CSD might consider recommending that states give dispute avoidance preference over dispute stettlement and explore ways and means to that end.

57. Views were expressed that some international institutions such as UNEP would act under new mandates as a consequence of the Rio Summit; for UNEP this includes a strengthened role in the field of international environmental law. In this context sustainable development was regarded by some participants as a yardstick for the performance of international environmental agreements.

Some participants held the view that already existing or emerging international funds and trust funds could serve as viable means to support efforts, mainly of developing countries, orientated toward sustainable development. Such funds entrusted to already existing institutions could avoid the creation of new bureaucracies and facilitate crucial financial transfers.

The role of corporate business was highlighted in view of its participation in decision-making at different levels, its contributions to pollution, and its possibilities of promoting technological change and other aspects of sustainable development. In this context attention was also drawn to the rising importance of environmentally sound infrastructures. Participants also stressed the advantages of eco-auditing and expressed concern about "backward leapfrogging", which implies the relocation of industries to environmentally less demanding sites.

On the functions of nongovernmental organizations, a broad debate took place. Whereas, on the one side, expectations were raised as to their right to know or their right to be heard, doubts were expressed, on the other side, as to the qualification, legitimacy, and usefulness of some NGOs. A broad feeling prevailed that additional light should be shed on these questions and that NGOs would have to abide by certain rules and criteria to participate in international lawmaking. The view was also expressed that NGOs could make useful contributions to sustainable development and the rule-making process related to it, especially in view of their linkages to local interests.

The CSD might consider it advisable to contribute to ongoing efforts at the level of ECOSOC aimed at reviewing conditions for the participation of informal actors in international decision-making related to sustainable development.

58. A broad discussion took place on various issues related to trade and environment. In this context risks associated with unilateral measures were highlighted because they may also threaten the cooperation in and the integrity of the international system. Attention was also drawn to so-called PPM-standards, the application of which should - in the view of many participants - only be used in a very restricted way. As regards environmental exceptions to be admitted in the GATT framework, the opinion was expressed that multilateral environmental agreements should be included in such a list. The new WTO Committee on Trade and Environment could play a useful role in this context.

Considering developments at the regional level, attention was drawn to new legislation and related experience within the European Union, where under certain circumstances priority is given to environmental concerns. Possible conflicts between those concerns and the free movement of goods could be settled through the highly developed judicial system available in the EU.

The CSD might consider it advisable to keep itself informed as closely and regularly as possible on the work of the new Committee on Trade and Environment of the WTO.

59. A general impression that prevailed throughout the Symposium was that international law on sustainable development and on particular international environmental law existed in a highly compartmentalized fashion. Although this situation might be unavoidable due to differences between matters still to be addressed, the existence of legal and international problems common to most instruments cannot be denied.

The CSD might consider it advisable to establish an Advisory Body of Legal Experts (ABLE) which

- would consider these legal and institutional problems common to most instruments in the field

- would give advice on possible solutions to these problems in also drawing on inputs from nonlegal sections, and

- would deal with all legal and institutional questions entrusted to it by the CSD.

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60. In the name of all participants Mr. JOMAA and Ms. WILLIAMS-SILVEIRA expressed their gratitude to the Austrian Government for having organized this symposium and for the hospitality extended to them.

APPENDIX I

Agenda / Programme of Work

Thursday, 14 April

Introduction by Ambassador Prof. Winfried LANG, Permanent Representative of Austria, Geneva

Welcome Addresses by the Federal Minister for Environment Youth and Family, Ms. Maria RAUCH-KALLAT and Ambassador Wolfgang WOLTE, Deputy Secretary General for Foreign Affairs (on behalf of Foreign Minister Alois Mock)

Keynote Statement by Ms. E.DOWDESWELL, Executive Director, UNEP: **Sustainable Development - Possible Contributions of International Law**

Opening Panel: Sustainable Development - Objective and Consequences

CHAIR: Mr. Hugo HAIDER, Deputy Director Geneneral, Federal Ministry for Environment, Youth and Family
RAPPORTEUR: Amb. Prof.Winfried LANG, Permanent Representative of Austria, Geneva
SPEAKERS: Executive Director DOWDESWELL
Mr. Ghazi JOMAA, Vice-Chairman, CSD
Ms. Mary Pat WILLLIAMS-SILVEIRA, DPCSD, New York

Panel 1 Priorities for the Development of International Law

CHAIR: Ambassador Franz CEDE, Legal Counsel, Federal Ministry for Foreign Affairs, Vienna
RAPPORTEUR: Mr. Hugo Maria SCHALLY, Austrian Mission, Geneva

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1.1.	**Regional (transboundary) and Global Problems**
SPEAKER:	Prof. Edith BROWN WEISS, Georgetown University Law Center, Washington D.C.
DISCUSSANT:	Prof. Konrad GINTHER, Graz University
1.2.	**General Rules versus Specific Obligations (Climate Change, Biodiversity, Desertification)**
SPEAKER:	Prof. Günther HANDL, Wayne State University Law School, Detroit
DISCUSSANT:	Mr. Michel ZAMMIT-CUTAJAR, Secretariat, INC-Climate Change Mr.A. DIALLO, Secretariat, INC-Desertification
1.3.	**New and Emerging Principles (as contained in Rio Declaration)**
SPEAKER:	Mr. Philippe SANDS, Director, FIELD, King's College, London
DISCUSSANT:	Dr. Howard MANN, Ottawa, Ontario

Friday, 15 April

Panel 2	**Implementation of and Compliance with International Environmental Commitments**
CHAIR:	Prof. Gerhard HAFNER, Vienna University
RAPPORTEUR:	Dr. Meinrad HANDSTANGER, Federal Chancellory, Vienna
2.1.	**Effective Implementation**
SPEAKER:	Dr. Ronald B. MITCHELL, Harvard University, Cambridge MA (on behalf of Prof. Antonia Chayes)
DISCUSSANT:	Mr.M. KOSKENNIEMI, Ministry of Foreign Affairs, Legal Department, Helsinki
2.2.	**Mechanisms of Monitoring and Reporting on Compliance**

SPEAKER: Mr. Patrick SZELL, Legal Directorate, Dept. of the Environment, London
DISCUSSANT: Dr. Ronald B. MITCHELL, Harvard University, Cambridge MA

2.3. **Possible Conflicts, their Prevention and Settlement, Alternative Mechanisms for Dispute Avoidance, such as "UN-Green Helmets"**

SPEAKER: Mr. Andronico ADEDE, Deputy Director for Research and Studies, Codification Division, Office of Legal Affairs, UNO, New York
DISCUSSANT: Dr. Gerhard LOIBL, Vienna University

2.4. **Capacity Building at the Regional and National Levels (law making, institution-building, development of human resources)**

SPEAKER: Ms. Diana PONCE NAVA, UNEP, Nairobi
DISCUSSANT: Mr. Alan BOYLE, Queen Mary and Westfield College, University of London

Panel 3 **Participation of all Stakeholders in the Development and Implementation of International Law for Sustainable Development**

CHAIR: Prof. Christoph SCHREUER, Salzburg University
RAPPORTEUR: Ms. Waltraud PETEK, Federal Ministry for Environment, Youth and Family, Vienna

3.1. **International Institutions**

SPEAKER: Dr. A.TIMOSHENKO, UNEP, Nairobi
DISCUSSANT: Prof. M. A. BEKHECHI, University of Oran, Faculty of Law

3.2. **Role of the International Financial Institutions**

SPEAKER: Dr. Peter SAND, World Bank/Legal Department, Washington D.C.
DISCUSSANT: Mr. George de BERDT ROMILLY, Halifax

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3.3. **Role of Corporate Business**

SPEAKER: Prof. Nazli CHOUCRI, Massachusetts Institute of Technology
DISCUSSANT: Dr. Norio YAMAMOTO, Global Infrastructure Fund, Tokyo

3.4. **Role of NGOs**

SPEAKER: Dr. W. BURHENNE, Executive Governor, Internat. Council of Environmental Law, Bonn
DISCUSSANT: Mr. Owen LYNCH, World Ressources Institute, Washington D.C.

Saturday, 16 April

Panel 4 **Environmental Policies - their Compatibility with International Trade and other Agreements**

CHAIR: Mr. Thomas Michael BAIER, Federal Ministry for Foreign Affairs, Vienna
RAPPORTEUR: Ms. Ulrike HLAWATSCH, Federal Ministry for Environment, Youth and Family, Vienna

4.1. **Unilateral Measures versus Multilateral Environmental Agreements**

SPEAKER: Mr.Robert A.REINSTEIN, Exec.Vice President, Washington International Energy Group
DISCUSSANT: Ms.Laura CAMPBELL, Montreal Protocol Secretariat

4.2. **Product Standards versus Processes and Production Methods (PPMs)**

SPEAKER: Ms.Candice STEVENS, OECD
DISCUSSANT: Prof.Thomas SCHOENBAUM, University of Georgia, Athens, GA

4.3. Regional Perspectives on Trade and Environment

SPEAKER: Mr.Joachim SCHERER, Baker & McKenzie, Frankfurt/Main

DISCUSSANT: Ms. Martina SCHUSTER-MEYER, Federal Ministry for Environment, Youth and Family, Vienna

Concluding Statement by Ambassador Prof. Winfried LANG

APPENDIX II

List of Participants

Mr. Andronico ADEDE, Deputy Director for Research and Studies, Codification Division, Office of Legal Affairs, UN, New York,

Mr. Thomas Michael BAIER, Legal Office, Federal Ministry for Foreign Affairs, Vienna

Prof. M.A. BEKHECHI, University of Oran, Faculty of Law, Algeria,

Mr. George de BERDT ROMILLY Environmental and Labour Consultant, Halifax

Mr. Alan BOYLE, Queen Mary and Westfield College, University of London

Prof. Edith BROWN WEISS, Georgetown University Law Center, Washington, D.C.

Dr. Wolfgang E. BURHENNE, Interparlamentarische Arbeitsgemeinschaft, Bonn

Ms. Laura B. CAMPBELL, Deputy Co-ordinator, Ozone Secretariat, UNEP, Nairobi

Ambassador Franz CEDE, Legal Counsel, Federal Ministry for Foreign Affairs, Vienna

Prof. Nazli CHOUCRI, Massachusetts Institute of Technology, Department of Political Science, Cambridge, MA.

Mr. Arba DIALLO, Executive Secretary INC-Desertification, Geneva

Ms. Elizabeth DOWDESWELL, Executive Director, UNEP, Nairobi

Prof. Dr. Konrad GINTHER, Graz University

Prof. Gerhard HAFNER, Vienna University

Mr. Hugo HAIDER, Deputy Director Geneneral, Federal Ministry for Environment, Youth and Family

Prof. Günther HANDL, University of Colorado, Boulder, CO.

Mr. Meinrad HANDSTANGER, Federal Chancellory, Vienna

Ms. Ulrike HLAWATSCH, Federal Ministry for Environment, Family and Youth, Vienna

Mr. Ghazi JOMAA, Vice-Chairman, CSD, Mission of Tunisia, New York

Mr. M. KOSKENNIEMI, Ministry of Foreign Affairs, Legal Department, Helsinki

Ambassador Prof. Winfried LANG, Permanent Representative of Austria, Geneva

Dr. Gerhard LOIBL, Vienna University

Mr. Owen LYNCH, World Resources Institute, Washington D.C.

Dr. Howard MANN, International and Environmental Law and Policy Legal and Consulting Practice, Quebec

Dr. Ronald B. MITCHELL, Harvard University, Center for Science and International Affairs, Cambridge, MA.

Ms. Waltraud PETEK, Federal Ministry for Environment, Family and Youth, Vienna

Ms. Diana PONCE NAVA, Policy Advisor of the Executive Directors, UNEP, Nairobi

Ms. Maria RAUCH-KALLAT, Federal Minister for Environment Youth and Family

Mr. Robert A. REINSTEIN, Executive Vice President, Washington International Energy Group, Washington D.C.

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